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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,704	12/22/2003	Tim Keith	2976-4037US1	8966
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MORGAN & FINNEGAN, L.L.P. 3 WORLD FINANCIAL CENTER NEW YORK, NY 10281-2101				
EXAMINER				
SALMON, KATHERINE D				
ART UNIT		PAPER NUMBER		
1634				

DATE MAILED: 11/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/743,704

Applicant(s)

KEITH ET AL.

Examiner

Katherine Salmon

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1634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) 16-19, 22-26, 28-31 and 33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15, 20, 21, 27 and 32 is/are rejected.
- 7) ☒ Claim(s) 13-15, 20 and 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 12/22/2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☒ Other: 2 Alignments.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I, and SEQ ID No. 4 and the SNP of SEQ ID NO. 49 in the reply filed on 9/21/2006 is acknowledged.

The traversal is on the ground(s) that there is no serious search burden because to search one group the other groups must be considered (p. 3 2nd paragraph). The reply asserts the search of DNA and proteins would overlap because the nucleic acids, vectors, and host cells encode and express the product encompassed by the protein claims (p. 3 3rd paragraph). The reply asserts the methods of treating Group V use antibodies of Group III having an antigen binding portion to the polypeptides of Group II and nucleic acids of Group I encoded by such polypeptides may be bound (p. 3 last paragraph).

This is not found persuasive because the requirement for restriction mailed on 7/24/2006 details the criteria for separation of the groups based on independent or distinctiveness of the claims and the serious burden of search the groups in combination.

Groups drawn to nucleotides, antibodies, and polypeptides are patentably distinct because they are drawn to different products having different structures and functions. The search for each of the groups presents a serious search burden, as the searches for each are not coextensive in scope. The inventions have different status in the art as shown by their different classifications. The nucleotides and polypeptides are described by sequence information, which must be searched in different databases. There is also

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a search burden in the non-patent literature. Prior to the concomitant isolation and expression of the sequence of interest there may be journal articles devoted solely to polypeptides, which would not have described the polynucleotides. Similarly, there may have been "classical" genetics papers with no knowledge of the polypeptide but spoke to the gene. A polypeptide and an antibody that binds to the polypeptide require different searches. An amino acid sequence search of the full-length protein is necessary for a determination of novelty and unobviousness of the protein. However, such a search is not required to identify antibodies. Furthermore, antibodies, which bind to an epitope of a polypeptide of a group, may be known even if the polypeptide is novel. Searching each of these groups is not coextensive and is a serious burden. For example, art relating to the sequence of nucleic acids would not necessarily provide descriptive information for the polypeptide.

Upon further consideration of the elected claims, the examiner decided that a partial rejoinder of the sequences was appropriate. The nucleic acid of SEQ ID No. 1 is the insert from a genomic BAC. The particular nucleic acids of SEQ ID No. 2, 4, 6, 8, and 10 are alternately spliced cDNAs from this sequence. Therefore SEQ IDs No. 1, 2, 4, 6, 8, and 10 will be rejoined. The requirement for a particular SNP, however, is still valid. The sequences of SNPs are each distinct fragments, which must be search individually.

The requirement is still deemed proper and is therefore made FINAL.

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2. Claims 16-19, 22-26, 28-31, and 33 are withdrawn from consideration as being drawn to a nonelected invention.
3. An Action on the merits for Claims 1-15, 20-21, 27, and 32 with the specific SNP of SEQ ID No. 49 is set forth below.

Claim Interpretation

4. It is noted that in the parent application, 09/627465 the first action mailed 06/19/2002 rejected SEQ ID No. 1 as being anticipated by BACPAC filters. The rejection was withdrawn in view of applicant's disclosure of an "isolated" nucleic acid in the specification in the following office action mailed 02/10/2003 (see p. 6 of office action and p. 11-12 of reply to office action pointing to definition of "isolated" filed 11/27/2002). Therefore, because of the interpretation of "isolated" already made of record Claim 27 is not being rejected as anticipated by the BACPAC filters.

Claim Objections

5. Claims 13-15 are identical to Claims 6-8. Claims 13-15 and Claims 6-8 depend from Claim 5:

Claims 20-21 are objected to because of the following informalities: The claims contain references to sequence and SNP sites described in tables. MPEP 2173(s) states "Where possible, claims are to be complete in themselves. Incorporation by reference to a specific figure or table is permitted only in exceptional circumstances where there is no practical way to define the invention in words and where it is more

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concise to incorporate by reference than duplicating a drawing or table into the claim. Incorporation by reference is a necessity doctrine, not for applicant's convenience." In the instant case it would be possible to refer to the claimed sequences and SNP sites using proper sequence identifiers and phraseology. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 21 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 21 is indefinite over the recitation "an isolated variant of SEQ ID No. 4". It is not clear what limits the claim with regard to the polymorphisms. It is not clear what it means for a nucleic acid to "contain" a polymorphism. It would be clearer if applicant required the presence of a polymorphic site as a particular position in a sequence. Clarification is required.

Claim Rejections - 35 USC § 112-Written Description

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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7. Claims 1-15, 20-21, 27, and 32 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 1 is drawn to an isolated nucleic acid which may comprise at least 50 nucleotides of SEQ ID No. 2, 4, 6, 8, or 10 or a complementary strand. Claims 2-3 define the nucleic acid. Claims 4-8 identify the vector or host cell. Claim 9 is drawn to at least 50 consecutive nucleotides of SEQ ID No. 2, 4, 6, 8, or 10 or a complementary strand. Claim 10 is drawn to hybridization conditions. Claims 11-15 define vector or host cell. Claims 20-21 are drawn to variants. Claim 27 is drawn to an isolated nucleic acid fragment comprising at least 15 consecutive nucleotide bases of SEQ ID No. 1. Claim 32 is drawn to a kit.

It is noted that nucleic acids consisting of SEQ ID No. 2, 4, 6, 8, or 10 meet the written description requirements. However, none of the instant claims are limited to such a molecule. It is noted that "a complementary nucleic acid sequence" is being broadly interpreted as encompassing any fragment of SEQ ID NO. 2, 4, 6, 8, or 10 and not the full length of the claimed sequences. The claims as written encompass fragments of at least 50 mer of SEQ ID No. 2, 4, 6, 8, or 10; at least 15 mer of SEQ ID No. 1, and any fragment of any length which is a complement of SEQ ID NO. 1, 2, 4, 6, 8, or 10. Therefore the claims as broadly written encompass flanking sequences or unspecified length and identity.

The claims as broadly written encompass isolated nucleic acids comprising fragments of SEQ ID No. 1-2, 4, 6, 8, or 10 without any description of the nucleotides flanking the fragments. The specification does not provide an adequate written description of the claimed genus of nucleic acids as the claims are broadly written.

Additionally, the claims do not set forth the number or identity of nucleotides flanking the recited nucleic acid fragments. Accordingly, the claims encompass nucleic acids which comprise the recited 15 mer fragments of SEQ ID NO: 1 or 50 mer fragments of SEQ ID No. 2, 4,6, 8, 10 but which do not share any overall level of sequence identity with the sequences. The variants may include nucleotide substitutions, additions, deletions, translocations and truncations. The claims thereby encompass naturally and non-naturally occurring allelic, mutant and splice variants of SEQ ID No. 1, 2, 4,6, 8, and 10.

The general knowledge in the art concerning homologues, mutants, allelic and splice variants does not provide any indication of how modification of the sequence of SEQ ID No. 1, 2, 4,6, 8, 10 will affect the functional properties of SEQ ID No. 1, 2, 4,6, 8, 10. The structure and function of one molecule does not provide guidance as to the structure and function of other molecules. Therefore, the description of one molecule (SEQ ID No. 1, 2, 4,6, 8, 10) is not representative of a genus of homologues, splice, mutant and allelic variants of SEQ ID No. 1, 2, 4,6, 8, 10 having unspecified functional activities different from that of SEQ ID No. 1, 2, 4,6, 8, 10. A general statement in the specification of a desire to obtain gene sequences, homologues from other species, mutated species, and polymorphic sequences is not equivalent to providing a clear and

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complete description of specific sequences which fall within the claimed genus of nucleic acids.

In analysis of the claims for compliance with the written description requirement of 35 U.S.C. 112, first paragraph, the written description guidelines note regarding genus/species situations that "Satisfactory disclosure of a ``representative number" depends on whether one of skill in the art would recognize that the applicant was in possession of the necessary common attributes or features of the elements possessed by the members of the genus in view of the species disclosed." (See: Federal Register: December 21, 1999 (Volume 64, Number 244), revised guidelines for written description.) In the instant case, the specification fails to teach the necessary common attributes or features of the genus of encompassed nucleic acids in view of the species disclosed. As such, one of skill in the art would not recognize that applicant was in possession of the detection of ANY fragment of SEQ ID No. 3 or 4.

Vas-Cath Inc. v. Mahurkar, 19 USPQ2d 1111, makes clear that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention." (See page 1117). The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See page 1116).

Finally, University of California v. Eli Lilly and Co., 43 USPQ2d 1398, 1404, 1405 held that:

...To fulfill the written description requirement, a patent specification must describe an invention and do so in sufficient detail that one skilled in the art can clearly conclude, "the inventor invented the claimed invention." *Lockwood v. American Airlines, Inc.*, 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (1997); *In re Gosteli*, 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989) (" [T]he description must clearly allow

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persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed."). Thus, an applicant complies with the written description requirement "by describing the invention, with all its claimed limitations, not that which makes it obvious," and by using "such descriptive means as words, structures, figures, diagrams, formulas, etc., that set forth the claimed invention." *Lockwood*, 107 F.3d at 1572, 41 USPQ2d at 1966.

An adequate written description of a DNA, such as the cDNA of the recombinant plasmids and microorganisms of the '525 patent, "requires a precise definition, such as by structure, formula, chemical name, or physical properties," not a mere wish or plan for obtaining the claimed chemical invention. *Fiers v. Revel*, 984 F.2d 1164, 1171, 25 USPQ2d 1601, 1606 (Fed. Cir. 1993). Accordingly, "an adequate written description of a DNA requires more than a mere statement that it is part of the invention and reference to a potential method for isolating it; what is required is a description of the DNA itself." *Id.* at 1170, 25 USPQ2d at 1606.

The claims do not meet the written description provision of 35 USC 112, first paragraph. Applicant is reminded that Vas-Cath makes clear that the written description provision of 35 USC 112 is severable from its enablement provision. (See page 1115.)

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-5, 9-12, 15, 20-21, 27, and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by Shankar et al. (Biochem. J. 1994 Vol 300 p. 295) as evidenced by GenBank Accession Number U14383 (NCBI website December 31, 1994).

Shankar et al. teaches a novel human airway mucin and disclose that this sequence is provided in the GenBank under the accession number U04799 (p. 295). GenBank Accession number U04799 has been replaced by Accession No. U14383 (see Accession No. U14383).

With regard to Claims 1 and 9, GenBank Accession No. U14383 teaches a sequence which is 87.7% similar over the entire length to SEQ ID NO. 4, 82% similar to SEQ ID No. 2, 69.2% similar to SEQ ID Nos 6, 8, and 10. U14383 comprising at least 50 nucleotides which hybridize to SEQ ID No. 4, 2, 6, 8, and 10. U14383 comprising at least 50 nucleotides which hybridize under stringent conditions to SEQ ID No. 2, 4, 6, 8, and 10 (please see attached alignment of GenBank Accession No. U14383 with SEQ ID No. 2, 4, 6, 8, and 10).

With regard to Claim 2, Shanker et al. teaches a nucleic acid sequence which is composed of DNA. With regard to Claim 3, GenBank Accession No. U14383 provides the amino acid sequence; therefore, the isolated nucleic acid which is at least 50 mer could be RNA.

With regard to Claims 4 and 11, Shanker et al. teaches placing the inset into a UniZap vector (expression vector) (p. 296 1st column 1st full paragraph). With regard to Claims 5, 8, 12, and 15 Shanker et al. teaches screening the library and selecting positive plaques (host cells) (p. 296 1st column 2nd full paragraph).

With regard to Claim 10, Shanker et al. teaches a fragment, which has 98% similarity to SEQ ID No. 4, therefore the DNA sequence would hybridize to SEQ ID No. 4 under high stringency conditions. Further note, SEQ ID NO. 2, 6, 8, and 10 are splice

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variants which are 100% identical at nucleotide positions 1-1004 therefore the Shanker et al. fragments would also hybridize to SEQ ID No. 2, 6, 8, and 10.

With regard to Claim 20, GenBank Accession No. U14383 comprises a polynucleotide, which has at least 15 consecutive nucleotide of any of the nucleic acids of Table 5 (SEQ 49) wherein there is a SNP site. The claims do not limit the SNP to a particular type.

U14383	TGTGCACTCTTGG-CATATGCCTAGGAGTGGAAGTCTG	1399
SEQ49	TGTGCACTCTTGGGCATATGCCTAGGAGTGGAAGTCTG	39

As observed above, the nucleotide sequence, U14383, comprises at least 15 nucleotides and there is a SNP (an deletion) at position 1374 of U14383, which is a SNP site for SEQ ID No. 49.

With regard to Claim 21, U14383 comprises a sequence that is 89.5% similar to SEQ ID No. 4; therefore, U14383 is a variant of SEQ ID No. 4. Genbank Accession No. U14383 comprises SEQ ID No. 49 with a SNP variant between the two sequences.

With regard to Claim 27, U14383 comprises at least 15 consecutive nucleotides of SEQ ID No. 1. For example nucleotides 300-419 of U14383 are 100% identical to nucleotides 1780-1899 of SEQ ID No. 1.

With regard to Claim 32, the recitation "for detecting chromosome 12 disorder in a biological sample" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535

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F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). Accordingly, the claim language of "detecting chromosome 12 disorder in a biological sample" merely sets forth the intended use or purpose of the claimed kits, but does not limit the scope of the claims. Shanker et al. teaches a RNAgents kit from Promega was used to isolate total RNA (p. 296 1st column last full paragraph). Shanker et al. teaches RNA samples isolated were transferred to a nylon membrane and probed with cDNA probes under high-stringency conditions which were labeled with a random primer labeling kit (p. 296 1st column last full paragraph). Therefore, Shanker et al. teaches probes and hybridization reagents (random primer labeling kit).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

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under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 6-7 and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shankar et al. (Biochem. J. 1994 Vol 300 p. 295) as evidenced by GenBank Accession Number U14383 (NCBI website December 31, 1994) in view of Lasky et al. (US Patent 5304640 April 19, 1994).

Shankar et al. teaches a novel human airway mucin and disclose that this sequence is provided in the GenBank under the accession number U04799 (p. 295). GenBank Accession number U04799 has been replaced by Accession No. U14383 (see Accession No. U14383).

GenBank Accession No. U14383 teaches a sequence which is 87.7% similar over the entire length to SEQ ID NO. 4, 82% similar to SEQ ID No. 2, 69.2% similar to SEQ ID Nos 6, 8, and 10. U14383 comprising at least 50 nucleotides which hybridize under stringent conditions to SEQ ID No. 4, 2, 6, 8, and 10. U14383 comprising at least 50 nucleotides which hybridize under stringent conditions to SEQ ID No. 2, 4, 6, 8, and 10 (please see attached alignment of GenBank Accession No. U14383 with SEQ ID No. 2, 4, 6, 8, and 10).

Shanker et al. teaches placing the inset into a UniZap vector (expression vector) (p. 296 1st column 1st full paragraph). Shanker et al. teaches screening the library and selecting positive plaques (host cells) (p. 296 1st column 2nd full paragraph).

Shankar et al. does not teach human (eukaryotic) host cells.

However, at the time the invention was made, the transformation of human host cells with vectors comprising nucleic acids encoding human proteins was routine in the art. With regard to Claims 6-7 and 13-14, Lasky et al. teaches, "Typical eukaryotic host cells are mammalian, such as Chinese hamster ovary cells or human embryonic kidney 293 cells (Col. 11, lines 36-38)."

Therefore, It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to have transformed human host cells with vectors comprising the nucleic acid taught by Shankar et al. The ordinary artisan would have been motivated to create such host cells for the benefit of expression the polypeptide encoded by the nucleic acid taught by Shankar et al. in order to characterize and study the polypeptide.

Double Patenting

11. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140

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F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-15 and 27 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 9, 13-25 of U.S. Patent No. 6737519. Although the conflicting claims are not identical, they are not patentably distinct from each other because the scope of the claimed sequences overlap with each other. Claims 1 and 9 of the instant application are drawn to SEQ ID No. 2, 4, 6, 8, or 10 or a fragment thereof, and stringent conditions. Claim 14 and 22 of the '519 patent are drawn to SEQ ID No. 2 or a fragment of 500 nucleotides or more of SEQ ID No. 2. Since SEQ ID No. 2, 4, 6, 8, and 10 are splice variants of each other and because each sequence share at least 500 bp in common the SEQ ID Nos of the instant application are within the scope of Claim 14 and 22 of the '519 patent. Claims 2-8 and 10-15 of the instant application are drawn to defining the nucleic acid, vector and host cell. These claims are not patentably distinct from Claims 15-21 and 23-25 of the '519 patent. Claim 27 of the instant application is drawn to a fragment of SEQ ID No. 1 of at least 15 consecutive nucleotides. Claims 1, 9, and 13 of the '519 patent are drawn to SEQ ID No. 1 or a fragment of at least 500 nucleotides. The instant Claim 27 would fall into the

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scope of the patented claims because both are drawn to SEQ ID No. 1.

Conclusion


12. No Claims are allowed.

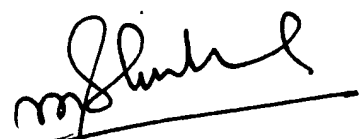
13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine Salmon whose telephone number is (571) 272-3316. The examiner can normally be reached on Monday-Friday 8AM-430PM.

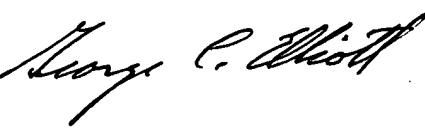
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla can be reached on (571) 272-0735. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Katherine Salmon
Examiner
Art Unit 1634


JEANINE A. GOLDBERG
PRIMARY EXAMINER
10/30/06


RAM R. SHUKLA, PH.D.
SUPERVISORY PATENT EXAMINER


George C. Elliott, Ph.D.
Director
Technology Center 1600

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OM nucleic - nucleic search, using sw model

Run on: October 24, 2006, 13:12:54 ; Search time 2 Seconds
 (without alignments)
 11.718 Million cell updates/sec

Title: U14383
 Perfect score: 1403
 Sequence: 1 CCACGAGCTGCCCACGTCCT.....AGGAGTGGAAGTCTGGGTA 1403

Scoring table: IDENTITY_NUC
 Gapop 10.0 , Gapext 0.5

Searched: 5 seqs, 8352 residues

Total number of hits satisfying chosen parameters: 10

Minimum DB seq length: 0
 Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
 Maximum Match 100%
 Listing first 5000 summaries

Database : US10743704.seq:*

Pred. No. is the number of results predicted by chance to have a
 score greater than or equal to the score of the result being printed,
 and is derived by analysis of the total score distribution.

SUMMARIES

Result			Query				Description
	No.	Score	Match	Length	ID		
	1	1230.4	87.7	1441	1	US-10-743-704-4	Sequence 4, Appli
	2	1149.9	82.0	1581	1	US-10-743-704-2	Sequence 2, Appli
	3	971.2	69.2	1576	1	US-10-743-704-6	Sequence 6, Appli
	4	971.2	69.2	1744	1	US-10-743-704-10	Sequence 10, Appl
	5	971.2	69.2	2010	1	US-10-743-704-8	Sequence 8, Appli
c	6	130	9.3	1441	1	US-10-743-704-4	Sequence 4, Appli
c	7	130	9.3	1576	1	US-10-743-704-6	Sequence 6, Appli
c	8	130	9.3	1581	1	US-10-743-704-2	Sequence 2, Appli
c	9	130	9.3	1744	1	US-10-743-704-10	Sequence 10, Appl
c	10	130	9.3	2010	1	US-10-743-704-8	Sequence 8, Appli

ALIGNMENTS

RESULT 1
 US-10-743-704-4

```

; Sequence 4, Application US/10743704
; GENERAL INFORMATION:
; APPLICANT: KEITH, TIM
; APPLICANT: LITTLE, RANDALL D.
; APPLICANT: EERDEWEGH, PAUL VAN
; APPLICANT: DUPUIS, JOSEE
; APPLICANT: DEL MASTRO, RICHARD L.
; APPLICANT: SIMON, JASON
; APPLICANT: ALLEN, KRISTINA
; APPLICANT: PANDIT, SUNIL
; TITLE OF INVENTION: NOVEL HUMAN GENES RELATING TO RESPIRATORY DISEASES AND
OBESITY
; FILE REFERENCE: 2976-4037
; CURRENT APPLICATION NUMBER: US/10/743,704
; CURRENT FILING DATE: 2003-12-22
; PRIOR APPLICATION NUMBER: US/09/627,465
; PRIOR FILING DATE: 2000-07-28
; PRIOR APPLICATION NUMBER: 60/211,749
; PRIOR FILING DATE: 2000-06-14
; PRIOR APPLICATION NUMBER: 60/146,336
; PRIOR FILING DATE: 1999-07-30
; NUMBER OF SEQ ID NOS: 51
; SOFTWARE: PatentIn Ver 2.1
; SEQ ID NO 4
; LENGTH: 1441
; TYPE: DNA
; ORGANISM: Homo sapiens
; FEATURE:
; NAME/KEY: CDS
; LOCATION: (3)..(1166)
US-10-743-704-4

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Query Match          87.7%; Score 1230.4; DB 1; Length 1441;
Best Local Similarity 97.2%; Pred. No. 7.2e-07;
Matches 1373; Conservative 0; Mismatches 26; Indels 14; Gaps 12;

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Qy      2 CACGAGCTGCCCACGTCTCTCCAGGAGGGGACACCGGGTTCACGAGCTGCCCACGCCCT 61
        |||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      2 CACGAGCTGCCCACGTCTCTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCACGTCTCGT 61

Qy     62 CTCCAGGAGGGGACACCGGGTTCACGAGCTGCCCACGTCTCTCCAGGAGGGGACACCGG 121
        ||||||| ||||| ||||| ||||||||||||||||||||||||||||| |||||
Db     62 CTCCAGGAAGGGAC-CCGGGTCCACGAGCTGCCCACGTCTCTCCAGGAAGGGAC-CCGG 119

Qy    122 GTTCATGAGCTGCCCACGCCCTTTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCACGT 181
        || || ||||| ||||| ||||| |||||||||||||||||||||||||||||
Db    120 GTCCACGAGCTGGCCACGTCTCTGCAGGAAGGGACCCCGGGTCCACGAGCTGCCCACGT 179

Qy    182 CCTCTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCACGTCTCTCCAGGAAGGGACCC 241
        |||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    180 CCTCTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCACGTCTCTCCAGGAAGGGACCC 239

Qy    242 CGGGTTCACGAGCTGCCCACGTCTCTCCAGGAAGGGACCC--GGGTACGAAGTACG 299
        ||||| |||||||||||||||||||||||||||||||||||||||| || |||||||
Db    240 CGGGTCCACGAGCTGCCCACGTCTCTCCAGGAAGGGACCCCGGGTCCACGAAGTACG 299

Qy    300 CGTCTCTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCACGTCTCTCCAGGAGGGGA 359

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Db	300	 CGTCCTCTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCACGTCCTCTCCAGGAGGGGA	359
Qy	360	CACCGGGTTCACGAGCTGCCACGCCCTCTCCAGGAAGGGACCCCGGGTTCATGAGCTGC	419
Db	360	 CACCGGGTTCACGAGCTGCCACGCCCTCTCCAGGAAGGGACCCCGGGTTCATGAGCTGC	419
Qy	420	CCACGTCTCTCCAGGAAGGGACCCGGGT-CACGAACTGCCACGCCCTCTCCAGGAGGG	478
Db	420	 CCACGTCTCTCCAGGAAGGGACCCGGGTCCACGAACTGCCACGCCCTCTCCAGGAGGG	479
Qy	479	GACCCGGGT-CACGAGCTGCCACGTCGTCTCCAGGAAGGGACCCGGGT-CACGAGCTGC	536
Db	480	 GACCCGGGTCCACGAGCTGCCACGTCGTCAACGGGAAGGGACCCGGGTCCACGAGCTGC	539
Qy	537	CCACGTCTCTCCAGGAAGGGACCCGGGT-CACGAACTGCCACGCCCTCTCCAGGAGGG	595
Db	540	 CCACGTCTCTCCAGGAAGGGACCCGGGTCCACGAACTGCCACGCCCTCTCCAGGAGGG	599
Qy	596	GACACCGGGTTCACGAGCTGCCACGCCCTCTCCAGGAAGGGACCCCGGGTTCACGAGCT	655
Db	600	 GACACCGGGTTCACGAGCTGCCACGCCCTCTCCAGGAAGGGACCCCGGGTTCACGAGCT	659
Qy	656	GCCACGTCCTCTCCAGGAGGGGACACCGGGTTCACGAGCTGCCACGTCCTCTCCAGGA	715
Db	660	 GCCACGTCCTCTCCAGGAGGGGACACCGGGTTCACGAGCTGCCACGTCCTCTCCAGGA	719
Qy	716	GGGGACACCGGGTTCACGAGCTGCCACGCCCTCTCCAGGAGGGGACACCGGGTTCACGA	775
Db	720	 GGGGACACCGGGTTCACGAGCTGCCACGCCCTCTCCAGGAGGGGACACCGGGTTCACGA	779
Qy	776	GCTGCCCACGTCCTCTCCAGGAAGGGACCCGGGT-CACGAGCTGCCACGTCCTCTCCAG	834
Db	780	 GCTGCCCACGTCCTCTCCAGGAAGGGACCCGGGTCCACGAGCTGCCACGTCCTCTCCAG	839
Qy	835	GAGGGGACACCGGGTTCACGAGCTGCCACGCACTTTCCAGGAAGGGACCCCGGGTTCAG	894
Db	840	 GAGGGGACACCGGGTTCACGAGCTGCCACGCACTTTCCAGGAAGGGACCCCGGGTTCAG	899
Qy	895	GTCTCCTGCCGGCCACATCGTGCCTTTGTGTAAATCAGAAGAAAGATGAGGAACAGGCC	954
Db	900	 GTCTCCTGCCGGCCACATCGTGCCTTTGTGTAAATCAGAAGAAAGATGAGGAACAGGCC	959
Qy	955	CTCCTCTCTCTCCAGGCAGGCTTTGGTGGAGGGGCTGGATCTCCTGCCGCACCTTCCCTG	1014
Db	960	 CTCCTCTCTCTCCAGGCAGGCTTTGGTGGAGGGGCTGGATCTCCTGCCGCACCTTCCCTG	1019
Qy	1015	GCA-GGCACCCTGTCGTTGAGCCCCAGAAGTGCAGGCGGCCGGCAGAGAAGGGGTCCATG	1073
Db	1020	 GCAGGGCACCTGTCGTTGAGCCCCAGAAGTGCAGGCGGCCGGCAGAGAAGGGGTCCATG	1079
Qy	1074	ATGGCGCCTCGGTGCG--GCCTTGACCTGCCCCATGGACCTGGAGACAGGGTTTCTCC	1131
Db	1080	 ATGGCGCCTCGGTGCGCAGCCTTGACCTGCCCCATGGACCTGGAGACAGGGTTTCTCC	1139
Qy	1132	TCATTGGCCAGGCTGGTCTCGAACTCCTGACCTCAGACGATCCACCTGCCTCAGCCTCCC	1191

Db 1140 TCATTGGCCAGGCTGGTCTCGAACTCCTGACCTCAGACGATCCACCTGCCTCAGCCTCCC 1199
 Qy 1192 GAAGTGTTGGGATTACA-GCACGAGCCACTGTGCCCCGGCCATCATTCTTTTACTGCTG 1250
 |||||||||||||||| ||||||||||||||||||||||||||||||||||||
 Db 1200 GAAGTGTTGGGATTACAGGCACGAGCCACTGTGCCCCGGCCATCATTCTTTTACTGCTG 1259
 Qy 1251 ACTAATAGTCTGCTGTGTGAATCCACCGCTAGAAACCCACTCATCAGTTGATGGTCATGT 1310
 |||||||||||||||| ||||||||||||||||||||||||||||||||||||
 Db 1260 ACTAATAGTCTGCTGTGTGAATCCACCGCTAGAAACCCACTCATCAGTTGATGGTCATGT 1319
 Qy 1311 GGGTTGCTTCTCGTATTTCGCTTATTATGAACAGTGCTGGAATAAACGTTCTGTGCACTC 1370
 |||||||| |||||||| |||||||| |||||||| |||||||| ||||||||
 Db 1320 GGGTTGCTTCTCGTATTTCGCTTATTATGAACAGTGCTGGAATAAACGTTCTGTGCACTC 1379
 Qy 1371 TT-GGCATATGCCTAGGAGTGGAAGTCTGGGT 1402
 || |||||| |||||||| |||||||| ||||||||
 Db 1380 TTGGGCATACGCCTAGGAGTGGAAGTCTGGGT 1412

RESULT 2

US-10-743-704-2

; Sequence 2, Application US/10743704

; GENERAL INFORMATION:

; APPLICANT: KEITH, TIM

; APPLICANT: LITTLE, RANDALL D.

; APPLICANT: EERDEWEGH, PAUL VAN

; APPLICANT: DUPUIS, JOSEE

; APPLICANT: DEL MASTRO, RICHARD L.

; APPLICANT: SIMON, JASON

; APPLICANT: ALLEN, KRISTINA

; APPLICANT: PANDIT, SUNIL

; TITLE OF INVENTION: NOVEL HUMAN GENES RELATING TO RESPIRATORY DISEASES AND OBESITY

; FILE REFERENCE: 2976-4037

; CURRENT APPLICATION NUMBER: US/10/743,704

; CURRENT FILING DATE: 2003-12-22

; PRIOR APPLICATION NUMBER: US/09/627,465

; PRIOR FILING DATE: 2000-07-28

; PRIOR APPLICATION NUMBER: 60/211,749

; PRIOR FILING DATE: 2000-06-14

; PRIOR APPLICATION NUMBER: 60/146,336

; PRIOR FILING DATE: 1999-07-30

; NUMBER OF SEQ ID NOS: 51

; SOFTWARE: PatentIn Ver 2.1

; SEQ ID NO 2

; LENGTH: 1581

; TYPE: DNA

; ORGANISM: Homo sapiens

; FEATURE:

; NAME/KEY: CDS

; LOCATION: (3)..(1307)

US-10-743-704-2

Query Match 82.0%; Score 1149.9; DB 1; Length 1581;

Best Local Similarity 88.4%; Pred. No. 2.2e-06;

Matches 1373; Conservative 0; Mismatches 26; Indels 155; Gaps 13;

Qy 2 CACGAGCTGCCCACGTCTCTCCAGGAGGGGACACCGGGTTCACGAGCTGCCCACGCCCT 61
 |||||
 Db 2 CACGAGCTGCCCACGTCTCTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCACGTCTCGT 61

Qy 62 CTCCAGGAGGGGACACCGGGTTCACGAGCTGCCCACGTCTCTCCAGGAGGGGACACCGG 121
 |||||
 Db 62 CTCCAGGAAGGGAC - CCGGGTCCACGAGCTGCCCACGTCTCTCCAGGAAAGGAC - CCGG 119

Qy 122 GTTCATGAGCTGCCCACGCCCTTTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCACGT 181
 |||||
 Db 120 GTCCACGAGCTGGCCACGTCTCTGCAGGAAGGGACCCCGGGTCCACGAGCTGCCCACGT 179

Qy 182 CCTCTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCACGTCTCTCCAGGAAGGGACCC 241
 |||||
 Db 180 CCTCTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCACGTCTCTCCAGGAAGGGACCC 239

Qy 242 CGGGTTCACGAGCTGCCCACGTCTCTCCAGGAAGGGACCC - -GGGTACGAAGTACCCCA 299
 |||||
 Db 240 CGGGTCCACGAGCTGCCCACGTCTCTCCAGGAAGGGACCCCGGGTCCACGAAGTACCCCA 299

Qy 300 CGTCCTCTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCACGTCTCTCCAGGAGGGGA 359
 |||||
 Db 300 CGTCCTCTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCACGTCTCTCCAGGAGGGGA 359

Qy 360 CACCGGGTTCACGAGCTGCCCACGCCCTCTCCAGGAAGGGACCCCGGGTTCATGAGCTGC 419
 |||||
 Db 360 CACCGGGTTCACGAGCTGCCCACGCCCTCTCCAGGAAGGGACCCCGGGTTCATGAGCTGC 419

Qy 420 CCACGTCTCTCCAGGAAGGGACCCCGGT - CACGAAGTACCCACGCCCTCTCCAGGAGGG 478
 |||||
 Db 420 CCACGTCTCTCCAGGAAGGGACCCCGGTCCACGAAGTACCCACGCCCTCTCCAGGAGGG 479

Qy 479 GACCCGGGT - CACGAGCTGCCCACGTCTCTCCAGGAAGGGACCCCGGT - CACGAGCTGC 536
 |||||
 Db 480 GACCCGGGTCCACGAGCTGCCCACGTCTCTCAACGGGAAGGGACCCCGGTCCACGAGCTGC 539

Qy 537 CCACGTCTCTCTCCAGGAAGGGACCCCGGT - CACGAAGTACCCACGCCCTCTCCAGGAGGG 595
 |||||
 Db 540 CCACGTCTCTCTCCAGGAAGGGACCCCGGTCCACGAAGTACCCACGCCCTCTCCAGGAGGG 599

Qy 596 GACACCGGGTTCACGAGCTGCCCACGCCCTCTCCAGGAAGGGACCCCGGGTTCACGAGCT 655
 |||||
 Db 600 GACACCGGGTTCACGAGCTGCCCACGCCCTCTCCAGGAAGGGACCCCGGGTTCACGAGCT 659

Qy 656 GCCCACGTCTCTCTCCAGGAGGGGACACCGGGTTCACGAGCTGCCCACGTCTCTCTCCAGGA 715
 |||||
 Db 660 GCCCACGTCTCTCTCCAGGAGGGGACACCGGGTTCACGAGCTGCCCACGTCTCTCTCCAGGA 719

Qy 716 GGGGACACCGGGTTCACGAGCTGCCCACGCCCTCTCCAGGAGGGGACACCGGGTTCACGA 775
 |||||
 Db 720 GGGGACACCGGGTTCACGAGCTGCCCACGCCCTCTCCAGGAGGGGACACCGGGTTCACGA 779

Qy 776 GCTGCCCACGTCTCTCTCCAGGAAGGGACCCCGGT - CACGAGCTGCCCACGTCTCTCTCCAG 834
 |||||
 Db 780 GCTGCCCACGTCTCTCTCCAGGAAGGGACCCCGGTCCACGAGCTGCCCACGTCTCTCTCCAG 839

Qy 835 GAGGGGACACCGGGTTCACGAGCTGCCCACGCACTTTCCAGGAAGGGACCCCGGGTTCAG 894

Db	840		GAGGGGACACCGGGTTCACGAGCTGCCCACGCACTTTCAGGAAGGGACCCCGGGTTCAG	899
Qy	895		GTCTCCTGCCGGCCACATCGTGCCTTTGTGTAAATCAGAAGAAAGATGAGGAACAGGCC	954
Db	900		GTCTCCTGCCGGCCACATCGTGCCTTTGTGTAAATCAGAAGAAAGATGAGGAACAGGCC	959
Qy	955		CTCCTCTCTCTCCAGGCAGGCTTTGGTGGAGGGGCTGGATCTCCTGCCGCACCTTCCCTG	1014
Db	960		CTCCTCTCTCTCCAGGCAGGCTTTGGTGGAGGGGCTGGATCTCCTGCCGCACCTTCCCTG	1019
Qy	1015		GCA-GGCACCCTGTCGTTGAGCCCCAGAAGTGCAGGCGGCCGGCAGAGAAGGGGTCCATG	1073
Db	1020		GCAGGGCACCTGTGCTTGAGCCCCAGAAGTGCAGGCGGCCGGCAGAGAAGGGGTCCATG	1079
Qy	1074		ATGGCGCCTCGGTGCG--GCCTTGACCTGCCCCATGGACCTGG-----	1116
Db	1080		ATGGCGCCTCGGTGCGCAGCCTTGACCTGCCCCATGGACCTGGGAACCTCCCGGCTCT	1139
Qy	1117		-----	1116
Db	1140		TCCCACTCGGGAAAGGAAGGCTCTGGGCATGGAGGTCGGCCAGGCCCCATCCCCGTACCC	1199
Qy	1117		-----	1116
Db	1200		TGGCCCTTCTTCCTGCTTCCTGTTTGTCACTGCCCCGGGGCCTTTGCACCTGCATTCCCT	1259
Qy	1117		-----AGACAGGGTTTCTCCTCATTGGCCAGGCTGGTCTCGAACTCCTGACCTCAGACG	1170
Db	1260		CTCTCTAGACAGGGTTTCTCCTCATTGGCCAGGCTGGTCTCGAACTCCTGACCTCAGACG	1319
Qy	1171		ATCCACCTGCCTCAGCCTCCCGAAGTGTTGGGATTACA-GCACGAGCCACTGTGCCCGGC	1229
Db	1320		ATCCACCTGCCTCAGCCTCCCGAAGTGTTGGGATTACAGGCACGAGCCACTGTGCCCGGC	1379
Qy	1230		CATCATTCCTTTTTACTGCTGACTAATAGTCTGCTGTGTGAATCCACCGCTAGAAACCCA	1289
Db	1380		CATCATTCCTTTTTACTGCTGACTAATAGTCTGCTGTGTGAATCCACCGCTAGAAACCCA	1439
Qy	1290		CTCATCAGTTGATGGTCATGTGGGTTGCTTCTCGTATTCGCTTATTATGAACAGTGCTGG	1349
Db	1440		CTCATCAGTTGATGGTCATGTGGGTTGCTTCTGCTATTCGCTTATTATGAACAGTGCTGG	1499
Qy	1350		AATAAACGTTCTGTGCACTCTT-GGCATATGCCTAGGAGTGGAAGTGCCTGGGT	1402
Db	1500		AATAAACGTTCTGTGCACTCTTGGGCATACGCCTAGGAGTGGAAGTGCCTGGGT	1553

RESULT 3

US-10-743-704-6

; Sequence 6, Application US/10743704

; GENERAL INFORMATION:

; APPLICANT: KEITH, TIM

; APPLICANT: LITTLE, RANDALL D.

; APPLICANT: EERDEWEGH, PAUL VAN

; APPLICANT: DUPUIS, JOSEE

; APPLICANT: DEL MASTRO, RICHARD L.

```

; APPLICANT: SIMON, JASON
; APPLICANT: ALLEN, KRISTINA
; APPLICANT: PANDIT, SUNIL
; TITLE OF INVENTION: NOVEL HUMAN GENES RELATING TO RESPIRATORY DISEASES AND
OBESITY
; FILE REFERENCE: 2976-4037
; CURRENT APPLICATION NUMBER: US/10/743,704
; CURRENT FILING DATE: 2003-12-22
; PRIOR APPLICATION NUMBER: US/09/627,465
; PRIOR FILING DATE: 2000-07-28
; PRIOR APPLICATION NUMBER: 60/211,749
; PRIOR FILING DATE: 2000-06-14
; PRIOR APPLICATION NUMBER: 60/146,336
; PRIOR FILING DATE: 1999-07-30
; NUMBER OF SEQ ID NOS: 51
; SOFTWARE: PatentIn Ver 2.1
; SEQ ID NO 6
; LENGTH: 1576
; TYPE: DNA
; ORGANISM: Homo sapiens
; FEATURE:
; NAME/KEY: CDS
; LOCATION: (3)..(1190)
US-10-743-704-6

```

```

Query Match          69.2%; Score 971.2; DB 1; Length 1576;
Best Local Similarity 96.1%; Pred. No. 3.3e-05;
Matches 1097; Conservative 0; Mismatches 33; Indels 12; Gaps 10;

```

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Qy      2 CACGAGCTGCCCACGTCCTCTCCAGGAGGGGACACCGGGTTCACGAGCTGCCCACGCCCT 61
        |||
Db      2 CACGAGCTGCCCACGTCCTCTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCACGTCGT 61

Qy     62 CTCCAGGAGGGGACACCGGGTTCACGAGCTGCCCACGTCCTCTCCAGGAGGGGACACCGG 121
        |||
Db     62 CTCCAGGAAGGGAC-CCGGGTCCACGAGCTGCCCACGTCCTCTCCAGGAAAGGAC-CCGG 119

Qy    122 GTTCATGAGCTGCCCACGCCCTTTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCACGT 181
        |||
Db    120 GTCCACGAGCTGGCCACGTCTCTGCAGGAAGGGACCCCGGGTCCACGAGCTGCCCACGT 179

Qy    182 CCTCTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCACGTCCTCTCCAGGAAGGGACCC 241
        |||
Db    180 CCTCTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCACGTCCTCTCCAGGAAGGGACCC 239

Qy    242 CGGGTTCACGAGCTGCCCACGTCCTCTCCAGGAAGGGACCC--GGGTCACGAAGTACCA 299
        |||
Db    240 CGGGTCCACGAGCTGCCCACGTCCTCTCCAGGAAGGGACCCCGGGTCCACGAAGTACCA 299

Qy    300 CGTCCTCTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCACGTCCTCTCCAGGAGGGGA 359
        |||
Db    300 CGTCCTCTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCACGTCCTCTCCAGGAGGGGA 359

Qy    360 CACCGGGTTCACGAGCTGCCCACGCCCTCTCCAGGAAGGGACCCCGGGTTCATGAGCTGC 419
        |||
Db    360 CACCGGGTTCACGAGCTGCCCACGCCCTCTCCAGGAAGGGACCCCGGGTTCATGAGCTGC 419

```


Qy	420	CCACGTCTCTCCAGGAAGGGACCCGGGT-CACGAACTGCCCACGCCCTCTCCAGGAGGG	478
Db	420	CCACGTCTCTCCAGGAAGGGACCCGGGTCCACGAACTGCCCACGCCCTCTCCAGGAGGG	479
Qy	479	GACCCGGGT-CACGAGCTGCCCACGTCGTCTCCAGGAAGGGACCCGGGT-CACGAGCTGC	536
Db	480	GACCCGGGTCCACGAGCTGCCCACGTCGTCAACGGGAAGGGACCCGGGTCCACGAGCTGC	539
Qy	537	CCACGTCTCTCCAGGAAGGGACCCGGGT-CACGAACTGCCCACGCGCTCTCCAGGAGGG	595
Db	540	CCACGTCTCTCCAGGAAGGGACCCGGGTCCACGAACTGCCCACGCGCTCTCCAGGAGGG	599
Qy	596	GACACCGGGTTACGAGCTGCCCACGCCCTCTCCAGGAAGGGACCCGGGTTCACGAGCT	655
Db	600	GACACCGGGTTACGAGCTGCCCACGCCCTCTCCAGGAAGGGACCCGGGTTCACGAGCT	659
Qy	656	GCCCACGTCTCTCCAGGAGGGGACACCGGGTTACGAGCTGCCCACGTCTCTCCAGGA	715
Db	660	GCCCACGTCTCTCCAGGAGGGGACACCGGGTTACGAGCTGCCCACGTCTCTCCAGGA	719
Qy	716	GGGGACACCGGGTTACGAGCTGCCCACGCCCTCTCCAGGAGGGGACACCGGGTTACGA	775
Db	720	GGGGACACCGGGTTACGAGCTGCCCACGCCCTCTCCAGGAGGGGACACCGGGTTACGA	779
Qy	776	GCTGCCCACGTCTCTCCAGGAAGGGACCCGGGT-CACGAGCTGCCCACGTCTCTCCAG	834
Db	780	GCTGCCCACGTCTCTCCAGGAAGGGACCCGGGTCCACGAGCTGCCCACGTCTCTCCAG	839
Qy	835	GAGGGGACACCGGGTTACGAGCTGCCCACGCACTTTCCAGGAAGGGACCCCGGGTTACG	894
Db	840	GAGGGGACACCGGGTTACGAGCTGCCCACGCACTTTCCAGGAAGGGACCCCGGGTTACG	899
Qy	895	GTCTCTGCGGCCCCACATCGTGCCTTTGTGTAAATCAGAAGAAAGATGAGGAACAGGCC	954
Db	900	GTCTCTGCGGCCCCACATCGTGCCTTTGTGTAAATCAGAAGAAAGATGAGGAACAGGCC	959
Qy	955	CTCCTCTCTCTCCAGGCAGGCTTTGGTGGAGGGGCTGGATCTCCTGCCGCACCTTCCCTG	1014
Db	960	CTCCTCTCTCTCCAGGCAGGCTTTGGTGGAGGGGCTGGATCTCCTGCCGCACCTTCCCTG	1019
Qy	1015	GCA-GGCACCCTGTCGTTGAGCCCCAGAACTGCAGGCGGCCGGCAGAGAAGGGGTCCATG	1073
Db	1020	GCAGGGCACCCTGTGCTTGAGCCCCAGAACTGCAGGCGGCCGGCAGAGAAGGGGTCCATG	1079
Qy	1074	ATGGCGCCTCGGTGCG--GCCTTGGACCTGCCCCCATGGACCTGGAGACAGGGTTTCTCC	1131
Db	1080	ATGGCGCCTCGGTGCGCAGCCTTGGACCTGCCCCCATGGACCTGGGAACCTCCCGGCTCT	1139
Qy	1132	TC	1133
Db	1140	TC	1141

RESULT 4

US-10-743-704-10

; Sequence 10, Application US/10743704

; GENERAL INFORMATION:

```

; APPLICANT: KEITH, TIM
; APPLICANT: LITTLE, RANDALL D.
; APPLICANT: EERDEWEGH, PAUL VAN
; APPLICANT: DUPUIS, JOSEE
; APPLICANT: DEL MASTRO, RICHARD L.
; APPLICANT: SIMON, JASON
; APPLICANT: ALLEN, KRISTINA
; APPLICANT: PANDIT, SUNIL
; TITLE OF INVENTION: NOVEL HUMAN GENES RELATING TO RESPIRATORY DISEASES AND
OBESITY
; FILE REFERENCE: 2976-4037
; CURRENT APPLICATION NUMBER: US/10/743,704
; CURRENT FILING DATE: 2003-12-22
; PRIOR APPLICATION NUMBER: US/09/627,465
; PRIOR FILING DATE: 2000-07-28
; PRIOR APPLICATION NUMBER: 60/211,749
; PRIOR FILING DATE: 2000-06-14
; PRIOR APPLICATION NUMBER: 60/146,336
; PRIOR FILING DATE: 1999-07-30
; NUMBER OF SEQ ID NOS: 51
; SOFTWARE: PatentIn Ver 2.1
; SEQ ID NO 10
; LENGTH: 1744
; TYPE: DNA
; ORGANISM: Homo sapiens
; FEATURE:
; NAME/KEY: CDS
; LOCATION: (3)..(1349)
US-10-743-704-10

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Query Match          69.2%; Score 971.2; DB 1; Length 1744;
Best Local Similarity 96.1%; Pred. No. 3e-05;
Matches 1097; Conservative 0; Mismatches 33; Indels 12; Gaps 10;

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Qy      2 CACGAGCTGCCCACGTCCTCTCCAGGAGGGGACACCGGGTTCACGAGCTGCCCACGCCCT 61
        ||||||||||||||||||||||||||||| ||||| ||||||||||||||||||||||| |
Db      2 CACGAGCTGCCCACGTCCTCTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCACGTCGT 61

Qy     62 CTCCAGGAGGGGACACCGGGTTCACGAGCTGCCCACGTCCTCTCCAGGAGGGGACACCGG 121
        ||||||| ||||| ||||||| ||||||| ||||||| ||||| |||||
Db     62 CTCCAGGAAGGGAC-CCGGGTCCACGAGCTGCCCACGTCCTCTCCAGGAAAGGAC-CCGG 119

Qy    122 GTTCATGAGCTGCCCACGCCCTTTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCACGT 181
        || || ||||| ||||| ||| | ||||||| ||||||| |||||||
Db    120 GTCCACGAGCTGGCCACGTCCTCTGCAGGAAGGGACCCCGGGTCCACGAGCTGCCCACGT 179

Qy    182 CCTCTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCACGTCCTCTCCAGGAAGGGACCC 241
        ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||||||
Db    180 CCTCTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCACGTCCTCTCCAGGAAGGGACCC 239

Qy    242 CGGGTTCACGAGCTGCCCACGTCCTCTCCAGGAAGGGACCC--GGGTCACGAAGTCCCCA 299
        ||||| ||||||| ||||||| ||||||| ||||||| || || |||||||
Db    240 CGGGTCCACGAGCTGCCCACGTCCTCTCCAGGAAGGGACCCCGGGTCCACGAAGTCCCCA 299

Qy    300 CGTCCTCTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCACGTCCTCTCCAGGAGGGGA 359
        ||||||| ||||||| ||||||| ||||||| ||||||| |||||||
Db    300 CGTCCTCTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCACGTCCTCTCCAGGAGGGGA 359

```

Qy	360	CACCGGGTTCACGAGCTGCCCACGCCCTCTCCAGGAAGGGACCCCGGGTTCATGAGCTGC	419
Db	360	CACCGGGTTCACGAGCTGCCCACGCCCTCTCCAGGAAGGGACCCCGGGTTCATGAGCTGC	419
Qy	420	CCACGTCCTCTCCAGGAAGGGACCCGGGT-CACGAACTGCCCACGCCCTCTCCAGGAGGG	478
Db	420	CCACGTCCTCTCCAGGAAGGGACCCGGGTCCACGAACTGCCCACGCCCTCTCCAGGAGGG	479
Qy	479	GACCCGGGT-CACGAGCTGCCCACGTCGTCTCCAGGAAGGGACCCGGGT-CACGAGCTGC	536
Db	480	GACCCGGGTCCACGAGCTGCCCACGTCGTCAACGGGAAGGGACCCGGGTCCACGAGCTGC	539
Qy	537	CCACGTCCTCTCCAGGAAGGGACCCGGGT-CACGAACTGCCCACGCGCTCTCCAGGAGGG	595
Db	540	CCACGTCCTCTCCAGGAAGGGACCCGGGTCCACGAACTGCCCACGCGCTCTCCAGGAGGG	599
Qy	596	GACACCGGGTTCACGAGCTGCCCACGCCCTCTCCAGGAAGGGACCCCGGGTTCACGAGCT	655
Db	600	GACACCGGGTTCACGAGCTGCCCACGCCCTCTCCAGGAAGGGACCCCGGGTTCACGAGCT	659
Qy	656	GCCCACGTCCTCTCCAGGAGGGGACACCGGGTTCACGAGCTGCCCACGTCCTCTCCAGGA	715
Db	660	GCCCACGTCCTCTCCAGGAGGGGACACCGGGTTCACGAGCTGCCCACGTCCTCTCCAGGA	719
Qy	716	GGGGACACCGGGTTCACGAGCTGCCCACGCCCTCTCCAGGAGGGGACACCGGGTTCACGA	775
Db	720	GGGGACACCGGGTTCACGAGCTGCCCACGCCCTCTCCAGGAGGGGACACCGGGTTCACGA	779
Qy	776	GCTGCCCACGTCCTCTCCAGGAAGGGACCCGGGT-CACGAGCTGCCCACGTCCTCTCCAG	834
Db	780	GCTGCCCACGTCCTCTCCAGGAAGGGACCCGGGTCCACGAGCTGCCCACGTCCTCTCCAG	839
Qy	835	GAGGGGACACCGGGTTCACGAGCTGCCCACGCACTTTCCAGGAAGGGACCCCGGGTTCAG	894
Db	840	GAGGGGACACCGGGTTCACGAGCTGCCCACGCACTTTCCAGGAAGGGACCCCGGGTTCAG	899
Qy	895	GTCTCCTGCCGGCCACATCGTGCCTTTGTGTAAATCAGAAGAAAGATGAGGAACAGGCC	954
Db	900	GTCTCCTGCCGGCCACATCGTGCCTTTGTGTAAATCAGAAGAAAGATGAGGAACAGGCC	959
Qy	955	CTCCTCTCTCTCCAGGCAGGCTTTGGTGGAGGGGCTGGATCTCCTGCCGCACCTTCCCTG	1014
Db	960	CTCCTCTCTCTCCAGGCAGGCTTTGGTGGAGGGGCTGGATCTCCTGCCGCACCTTCCCTG	1019
Qy	1015	GCA-GGCACCCTGTGCTTGAGCCCCAGAACTGCAGGCGGCCGGCAGAGAAGGGGTCCATG	1073
Db	1020	GCAGGGCACCTGTGCTTGAGCCCCAGAACTGCAGGCGGCCGGCAGAGAAGGGGTCCATG	1079
Qy	1074	ATGGCGCCTCGGTGCG--GCCTTGACCTGCCCCATGGACCTGGAGACAGGGTTTCTCC	1131
Db	1080	ATGGCGCCTCGGTGCGCAGCCTTGACCTGCCCCATGGACCTGGGAACCTCCCGGCTCT	1139
Qy	1132	TC	1133
Db	1140	TC	1141

RESULT 5

US-10-743-704-8

; Sequence 8, Application US/10743704

; GENERAL INFORMATION:

; APPLICANT: KEITH, TIM

; APPLICANT: LITTLE, RANDALL D.

; APPLICANT: EERDEWEGH, PAUL VAN

; APPLICANT: DUPUIS, JOSEE

; APPLICANT: DEL MASTRO, RICHARD L.

; APPLICANT: SIMON, JASON

; APPLICANT: ALLEN, KRISTINA

; APPLICANT: PANDIT, SUNIL

; TITLE OF INVENTION: NOVEL HUMAN GENES RELATING TO RESPIRATORY DISEASES AND OBESITY

; FILE REFERENCE: 2976-4037

; CURRENT APPLICATION NUMBER: US/10/743,704

; CURRENT FILING DATE: 2003-12-22

; PRIOR APPLICATION NUMBER: US/09/627,465

; PRIOR FILING DATE: 2000-07-28

; PRIOR APPLICATION NUMBER: 60/211,749

; PRIOR FILING DATE: 2000-06-14

; PRIOR APPLICATION NUMBER: 60/146,336

; PRIOR FILING DATE: 1999-07-30

; NUMBER OF SEQ ID NOS: 51

; SOFTWARE: PatentIn Ver 2.1

; SEQ ID NO 8

; LENGTH: 2010

; TYPE: DNA

; ORGANISM: Homo sapiens

; FEATURE:

; NAME/KEY: CDS

; LOCATION: (3)..(1244)

US-10-743-704-8

Query Match 69.2%; Score 971.2; DB 1; Length 2010;

Best Local Similarity 96.9%; Pred. No. 2.6e-05;

Matches 1091; Conservative 0; Mismatches 23; Indels 12; Gaps 10;

```

Qy      2 CACGAGCTGCCCACGTCTCTCCAGGAGGGGACACCGGGTTCACGAGCTGCCCACGCCCT 61
        |||
Db      2 CACGAGCTGCCCACGTCTCTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCACGTCGT 61

Qy     62 CTCCAGGAGGGGACACCGGGTTCACGAGCTGCCCACGTCTCTCCAGGAGGGGACACCGG 121
        |||
Db     62 CTCCAGGAAGGGAC-CCGGGTCCACGAGCTGCCCACGTCTCTCCAGGAAAGGAC-CCGG 119

Qy    122 GTTCATGAGCTGCCCACGCCCTTTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCACGT 181
        |||
Db    120 GTCCACGAGCTGGCCACGTCTCTGCAGGAAGGGACCCCGGGTCCACGAGCTGCCCACGT 179

Qy    182 CCTCTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCACGTCTCTCCAGGAAGGGACCC 241
        |||
Db    180 CCTCTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCACGTCTCTCCAGGAAGGGACCC 239

Qy    242 CGGGTTCACGAGCTGCCCACGTCTCTCCAGGAAGGGACCC--GGGTACGAACTGCCCA 299
        |||

```

Db 240 CGGGTCCACGAGCTGCCCACGTCTCTCCAGGAAGGGACCCCGGGTCCACGAACTGCCCA 299

Qy 300 CGTCCTCTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCACGTCTCTCCAGGAGGGGA 359
 |||||

Db 300 CGTCCTCTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCACGTCTCTCCAGGAGGGGA 359

Qy 360 CACCGGGTTCACGAGCTGCCCACGCCCTCTCCAGGAAGGGACCCCGGGTTCATGAGCTGC 419
 |||||

Db 360 CACCGGGTTCACGAGCTGCCCACGCCCTCTCCAGGAAGGGACCCCGGGTTCATGAGCTGC 419

Qy 420 CCACGTCTCTCCAGGAAGGGACCCGGGT-CACGAACTGCCCACGCCCTCTCCAGGAGGG 478
 |||||

Db 420 CCACGTCTCTCCAGGAAGGGACCCGGGTCCACGAACTGCCCACGCCCTCTCCAGGAGGG 479

Qy 479 GACCCGGGT-CACGAGCTGCCCACGTCTCTCCAGGAAGGGACCCGGGT-CACGAGCTGC 536
 |||||

Db 480 GACCCGGGTCCACGAGCTGCCCACGTCTCAACGGGAAGGGACCCGGGTCCACGAGCTGC 539

Qy 537 CCACGTCTCTCTCCAGGAAGGGACCCGGGT-CACGAACTGCCCACGCGCTCTCCAGGAGGG 595
 |||||

Db 540 CCACGTCTCTCTCCAGGAAGGGACCCGGGTCCACGAACTGCCCACGCGCTCTCCAGGAGGG 599

Qy 596 GACACCGGGTTCACGAGCTGCCCACGCCCTCTCCAGGAAGGGACCCCGGGTTCACGAGCT 655
 |||||

Db 600 GACACCGGGTTCACGAGCTGCCCACGCCCTCTCCAGGAAGGGACCCCGGGTTCACGAGCT 659

Qy 656 GCCCACGTCTCTCTCCAGGAGGGGACACCGGGTTCACGAGCTGCCCACGTCTCTCTCCAGGA 715
 |||||

Db 660 GCCCACGTCTCTCTCCAGGAGGGGACACCGGGTTCACGAGCTGCCCACGTCTCTCTCCAGGA 719

Qy 716 GGGGACACCGGGTTCACGAGCTGCCCACGCCCTCTCCAGGAGGGGACACCGGGTTCACGA 775
 |||||

Db 720 GGGGACACCGGGTTCACGAGCTGCCCACGCCCTCTCCAGGAGGGGACACCGGGTTCACGA 779

Qy 776 GCTGCCCACGTCTCTCTCCAGGAAGGGACCCGGGT-CACGAGCTGCCCACGTCTCTCTCCAG 834
 |||||

Db 780 GCTGCCCACGTCTCTCTCCAGGAAGGGACCCGGGTCCACGAGCTGCCCACGTCTCTCTCCAG 839

Qy 835 GAGGGGACACCGGGTTCACGAGCTGCCCACGCACTTTCCAGGAAGGGACCCCGGGTTCAG 894
 |||||

Db 840 GAGGGGACACCGGGTTCACGAGCTGCCCACGCACTTTCCAGGAAGGGACCCCGGGTTCAG 899

Qy 895 GTCTCTTGCCGGCCACATCGTGCCTTTGTGTAAATCAGAAGAAAGATGAGGAACAGGCC 954
 |||||

Db 900 GTCTCTTGCCGGCCACATCGTGCCTTTGTGTAAATCAGAAGAAAGATGAGGAACAGGCC 959

Qy 955 CTCCTCTCTCTCCAGGCAGGCTTTGGTGGAGGGGCTGGATCTCTGCGCACCTTCCCTG 1014
 |||||

Db 960 CTCCTCTCTCTCCAGGCAGGCTTTGGTGGAGGGGCTGGATCTCTGCGCACCTTCCCTG 1019

Qy 1015 GCA-GGCACCCTGTGCTTGAGCCCCAGAACTGCAGGCGGCCGGCAGAGAAGGGGTCCATG 1073
 |||

Db 1020 GCAGGGCACCTGTGCTTGAGCCCCAGAACTGCAGGCGGCCGGCAGAGAAGGGGTCCATG 1079

Qy 1074 ATGGCGCCTCGGTGCG--GCCTTGACCTGCCCCATGGACCTGGA 1117
 |||||

Db 1080 ATGGCGCCTCGGTGCGCAGCCTTGACCTGCCCCATGGACCTGGA 1125

US-10-743-704-4/c

; GENERAL INFORMATION:

; APPLICANT: LITTLE, RANDALL D.

; APPLICANT: DUPUIS, JOSEE

; APPLICANT: SIMON, JASON

; APPLICANT: PANDIT, SUNIL

; FILE REFERENCE: 2976-4037

; CURRENT FILING DATE: 2003-12-22

; PRIOR FILING DATE: 2000-07-28

; PRIOR FILING DATE: 2000-06-14

; PRIOR FILING DATE: 1999-07-30

```
;  NUMBER OF SEQ ID NOS: 51
```

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; SOFTWARE: PatentIn Ver 2.1
```

; SEQ ID NO 4

; LENGTH: 1441

; TYPE: DNA

; ORGANISM: Homo sapiens

; FEATURE:

```
; NAME/KEY: CDS
```

; LOCATION: (3)..(1166)

US-10-743-704-4

Best Local Similarity 51.7%; Pred. No. 5;

Matches 429; Conservative 0; Mismatches 390; Indels 10; Gaps 6;

Db 893 CCGGGGTCCCTTCCTGGAAAGTGCGTGGGCAGCTCGTGAACCCGGTGTCCCCTCCTGGAG 834

Db 833 AGGACGTGGGCAGCTCGTG-GACCCGGGTCCCTTCCTGGAGAGGACGTGGGCAGCTCGTG 775

Db 774 AACCCGGTGTCCCCTCCTGGAGAGGGCGTGGGCAGCTCGTGAACCCGGTGTCCCCTCCTG 715

Db 714 GAGAGGACGTGGGCAGCTCGTGAACCCGGTGTCCCCCTCCTGGAGAGGACGTGGGCAGCTC 655

Qy 290 GAACTGCCCACGTCCTCTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCACGTCCTCTC 349

```

      | | | | | | | | | | | | | | | | | | | | | |
Db      654 GTGAACCCGGGGTCCCTTCCTGGAGAGGGCGTGGGCAGCTCGTGAACCCGGTGTCCCCTC 595
Qy      350 CAGGAGGGGACACCGGGTTCACGAGCTGCCCACGCCCTCTCCAGGAAGGGACCCGGGT 409
      | | | | | | | | | | | | | | | | | | | | | |
Db      594 CTGGAGAGCGCGTGGGCAGTTCGTG-GACCCGGGTCCCTTCCTGGAGAGGACGTGGGCAG 536
Qy      410 CATGAGCTGCCCACGTCTCTCCAGGAAGGGACCCGGGTACGAACTGCCCACGCCCTCT 469
      | | | | | | | | | | | | | | | | | | | | | |
Db      535 CTCGTGGACCCGGGTCCCTTCCCGTTGACGACGTGGGCAGCTCGTGGACCCGGGTCCCCT 476
Qy      470 CCAGGAGGGGACCCGGGTACGAGCTGCCCACGTCTCTCCAGGAAGGGACCCGGGTCA- 528
      | | | | | | | | | | | | | | | | | | | | | |
Db      475 CCTGGAGAGGGCGTGGGCAGTTCGTGGACCCGGGTCCCTTCCTGGAGAGGACGTGGGCAG 416
Qy      529 --CGAGCTGCCCACGTCTCTCCAGGAAGGGACCCGGG--TCACGAACTGCCCACGCGCT 584
      | | | | | | | | | | | | | | | | | | | | | |
Db      415 CTCATGAACCCGGGGTCCCTTCCTGGAGAGGGCGTGGGCAGCTCGTGAACCCGGTGTCCC 356
Qy      585 CTCCAGGAGGGGACACCGGGTTCACGAGCTGCCCACGCCCTCTCCAGGAAGGGACCCCGG 644
      | | | | | | | | | | | | | | | | | | | | | |
Db      355 CTCCTGGAGAGGACGTGGGCAGCTCGTGAACCCGGGGTCCCTTCCTGGAGAGGACGTGGG 296
Qy      645 GTTCACGAGCTGCCCACGTCTCTCCAGGAGGGGACACCGGGTTCACGAGCTGCCCACGT 704
      | | | | | | | | | | | | | | | | | | | | | |
Db      295 CAGTTCGTGGACCCGGGGTCCCTTCCTGGAGAGGACGTGGGCAGCTCGTGGACCCGGGGT 236
Qy      705 CCTCTCCAGGAGGGGACACCGGGTTCACGAGCTGCCCACGCCCTCTCCAGGAGGGGACAC 764
      | | | | | | | | | | | | | | | | | | | | | |
Db      235 CCCTTCCTGGAGAGGACGTGGGCAGCTCGTGAACCCGGGGTCCCTTCCTGGAGAGGACGT 176
Qy      765 CGGGTTCACGAGCTGCCCACGTCTCTCCAGGAAGGGACCCGGGTACGAGCTG-CCCAC 823
      | | | | | | | | | | | | | | | | | | | | | |
Db      175 GGGCAGCTCGTGGACCCGGGGTCCCTTCCTGCAGAGGACGTGGCCAGCTCGTGGACCCGG 116
Qy      824 GTCCTCTCCAGGAGGGGACACCGGGTTCACGAGCTGCCCACGCACTTTC 872
      | | | | | | | | | | | | | | | | | | | | | |
Db      115 GTCCTTTCCTGGAGAGGACGTGGGCAGCTCGTGGACCCGGGTCCCTTCC 67

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RESULT 7

US-10-743-704-6/c

; Sequence 6, Application US/10743704

; GENERAL INFORMATION:

; APPLICANT: KEITH, TIM

; APPLICANT: LITTLE, RANDALL D.

; APPLICANT: EERDEWEGH, PAUL VAN

; APPLICANT: DUPUIS, JOSEE

; APPLICANT: DEL MASTRO, RICHARD L.

; APPLICANT: SIMON, JASON

; APPLICANT: ALLEN, KRISTINA

; APPLICANT: PANDIT, SUNIL

; TITLE OF INVENTION: NOVEL HUMAN GENES RELATING TO RESPIRATORY DISEASES AND OBESITY

; FILE REFERENCE: 2976-4037

; CURRENT APPLICATION NUMBER: US/10/743,704

; CURRENT FILING DATE: 2003-12-22

```

; PRIOR APPLICATION NUMBER: US/09/627,465
; PRIOR FILING DATE: 2000-07-28
; PRIOR APPLICATION NUMBER: 60/211,749
; PRIOR FILING DATE: 2000-06-14
; PRIOR APPLICATION NUMBER: 60/146,336
; PRIOR FILING DATE: 1999-07-30
; NUMBER OF SEQ ID NOS: 51
; SOFTWARE: PatentIn Ver 2.1
; SEQ ID NO 6
;   LENGTH: 1576
;   TYPE: DNA
;   ORGANISM: Homo sapiens
;   FEATURE:
;   NAME/KEY: CDS
;   LOCATION: (3)..(1190)
US-10-743-704-6

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Query Match 9.3%; Score 130; DB 1; Length 1576;
Best Local Similarity 51.7%; Pred. No. 4.6;
Matches 429; Conservative 0; Mismatches 390; Indels 10; Gaps 6;

Qy	52	CCCACGCCCTCTCCAGGAGGGGACACCGGGTTCACGAGCTGCCCACGTCTCTCCAGGAG	111
Db	893	CCGGGGTCCCTTCTCGGAAAGTGCGTGGGCAGCTCGTGAACCCGGTGTCCCCTCCTGGAG	834
Qy	112	GGGACACCGGGTTTCATGAGCTGCCCCACGCCCTTTCCAGGAAGGGACCCCGGGTTCACGAG	171
Db	833	AGGACGTGGGCAGCTCGTG-GACCCGGGTCCCTTCTCGGAGAGGACGTGGGCAGCTCGTG	775
Qy	172	CTGCCCACGTCTCTCTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCACGTCTCTCCAG	231
Db	774	AACCCGGTGTCCCCTCCTGGAGAGGGCGTGGGCAGCTCGTGAACCCGGTGTCCCCTCCTG	715
Qy	232	GAAGGGACCCCGGGTTCACGAGCTGCCCACGTCTCTCCAGGAAGGGACCCGGG--TCAC	289
Db	714	GAGAGGACGTGGGCAGCTCGTGAACCCGGTGTCCCCTCCTGGAGAGGACGTGGGCAGCTC	655
Qy	290	GAACTGCCCACGTCTCTCTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCACGTCTCTC	349
Db	654	GTGAACCCGGGGTCCCTTCTCGGAGAGGGCGTGGGCAGCTCGTGAACCCGGTGTCCCCTC	595
Qy	350	CAGGAGGGGACACCGGGTTCACGAGCTGCCCACGCCCTCTCCAGGAAGGGACCCCGGGT	409
Db	594	CTGGAGAGCGCGTGGGCAGTTCGTG-GACCCGGGTCCCTTCTCGGAGAGGACGTGGGCAG	536
Qy	410	CATGAGCTGCCCACGTCTCTCTCCAGGAAGGGACCCGGGTACGAACTGCCCACGCCCTCT	469
Db	535	CTCGTGGACCCGGGTCCCTTCCCGTTGACGACGTGGGCAGCTCGTGGACCCGGGTCCCCT	476
Qy	470	CCAGGAGGGGACCCGGGTTCACGAGCTGCCCACGTCTCTCCAGGAAGGGACCCGGGTCA-	528
Db	475	CCTGGAGAGGGCGTGGGCAGTTCGTGGACCCGGGTCCCTTCTCGGAGAGGACGTGGGCAG	416
Qy	529	--CGAGCTGCCCACGTCTCTCTCCAGGAAGGGACCCGGG--TCACGAACTGCCCACGCGCT	584
Db	415	CTCATGAACCCGGGGTCCCTTCTCGGAGAGGGCGTGGGCAGCTCGTGAACCCGGTGTCCC	356

Qy 585 CTCCAGGAGGGGACACCGGGTTCACGAGCTGCCCACGCCCTCTCCAGGAAGGGACCCCGG 644
 |||| |||| |||| || || || || || || || || || || ||
 Db 355 CTCCTGGAGAGGACGTGGGCAGCTCGTGAACCCGGGGTCCCTTCCTGGAGAGGACGTGGG 296

Qy 645 GTTCACGAGCTGCCCACGTCCTCTCCAGGAGGGGACACCGGGTTCACGAGCTGCCCACGT 704
 || | || |||| |||| |||| |||| || || || || || || ||
 Db 295 CAGTTCGTGGACCCGGGGTCCCTTCCTGGAGAGGACGTGGGCAGCTCGTGGACCCGGGGT 236

Qy 705 CCTCTCCAGGAGGGGACACCGGGTTCACGAGCTGCCCACGCCCTCTCCAGGAGGGGACAC 764
 || |||| |||| |||| || || || || || || || || || || ||
 Db 235 CCCTTCCTGGAGAGGACGTGGGCAGCTCGTGAACCCGGGGTCCCTTCCTGGAGAGGACGT 176

Qy 765 CGGGTTCACGAGCTGCCCACGTCCTCTCCAGGAAGGGACCCGGGTCACGAGCTG-CCCAC 823
 || || || || || || || || || || || || || || || || ||
 Db 175 GGGCAGCTCGTGGACCCGGGGTCCCTTCCTGCAGAGGACGTGGCCAGCTCGTGGACCCGG 116

Qy 824 GTCCTCTCCAGGAGGGGACACCGGGTTCACGAGCTGCCCACGCACTTTC 872
 |||| |||| |||| |||| || || || || || || || || || ||
 Db 115 GTCCTTTCCTGGAGAGGACGTGGGCAGCTCGTGGACCCGGGTCCCTTCC 67

RESULT 8

US-10-743-704-2/c

; Sequence 2, Application US/10743704

; GENERAL INFORMATION:

; APPLICANT: KEITH, TIM

; APPLICANT: LITTLE, RANDALL D.

; APPLICANT: EERDEWEGH, PAUL VAN

; APPLICANT: DUPUIS, JOSEE

; APPLICANT: DEL MASTRO, RICHARD L.

; APPLICANT: SIMON, JASON

; APPLICANT: ALLEN, KRISTINA

; APPLICANT: PANDIT, SUNIL

; TITLE OF INVENTION: NOVEL HUMAN GENES RELATING TO RESPIRATORY DISEASES AND OBESITY

; FILE REFERENCE: 2976-4037

; CURRENT APPLICATION NUMBER: US/10/743,704

; CURRENT FILING DATE: 2003-12-22

; PRIOR APPLICATION NUMBER: US/09/627,465

; PRIOR FILING DATE: 2000-07-28

; PRIOR APPLICATION NUMBER: 60/211,749

; PRIOR FILING DATE: 2000-06-14

; PRIOR APPLICATION NUMBER: 60/146,336

; PRIOR FILING DATE: 1999-07-30

; NUMBER OF SEQ ID NOS: 51

; SOFTWARE: PatentIn Ver 2.1

; SEQ ID NO 2

; LENGTH: 1581

; TYPE: DNA

; ORGANISM: Homo sapiens

; FEATURE:

; NAME/KEY: CDS

; LOCATION: (3)..(1307)

US-10-743-704-2

Query Match 9.3%; Score 130; DB 1; Length 1581;

Best Local Similarity 51.7%; Pred. No. 4.6;

Matches 429; Conservative 0; Mismatches 390; Indels 10; Gaps 6;

Qy	52	CCCACGCTTCTCCAGGAGGGGACACCGGGTTTCACGAGCTGCCACGTCTCTCCAGGAG	111
Db	893	CCGGGGTCCCTTCTCCTGGAAAAGTGCGTGGGCAGCTCGTGAACCCGGTGTCCCTCTCGGAG	834
Qy	112	GGGACACCGGGTTCATGAGCTGCCCCACGCCCTTTCCAGGAAGGGACCCCGGGTTCACGAG	171
Db	833	AGGACGTGGGCAGCTCGTG-GACCCGGGTCCCTTCTGAGAGGACGTGGGCAGCTCGTG	775
Qy	172	CTGCCCACGTCTCTCTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCCACGTCTCTCCAG	231
Db	774	AACCCGGTGTCCCTCTCTGGAGAGGGCGTGGGCAGCTCGTGAACCCGGTGTCCCTCTCTG	715
Qy	232	GAAGGGACCCCGGGTTCACGAGCTGCCCCACGTCTCTCCAGGAAGGGACCCGGG--TCAC	289
Db	714	GAGAGGACGTGGGCAGCTCGTGAACCCGGTGTCCCTCTCTGGAGAGGACGTGGGCAGCTC	655
Qy	290	GAAGTCCCCACGTCTCTCTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCCACGTCTCTC	349
Db	654	GTGAACCCGGGGTCCCTTCTCTGGAGAGGGCGTGGGCAGCTCGTGAACCCGGTGTCCCTC	595
Qy	350	CAGGAGGGGACACCGGGTTCACGAGCTGCCCCACGCCCTCTCCAGGAAGGGACCCCGGGT	409
Db	594	CTGGAGAGCGCGTGGGCAGTTCGTG-GACCCGGGTCCCTTCTGAGAGGACGTGGGCAG	536
Qy	410	CATGAGCTGCCCCACGTCTCTCTCCAGGAAGGGACCCCGGGTTCACGAAGTCCCCACGCCCTCT	469
Db	535	CTCGTGGACCCGGGTCCCTTCCCGTTGACGACGTGGGCAGCTCGTGGACCCGGGTCCCT	476
Qy	470	CCAGGAGGGGACCCCGGGTTCACGAGCTGCCCCACGTCTCTCCAGGAAGGGACCCCGGGTCA-	528
Db	475	CCTGGAGAGGGCGTGGGCAGTTCGTGGACCCGGGTCCCTTCTCTGGAGAGGACGTGGGCAG	416
Qy	529	--CGAGCTGCCCCACGTCTCTCTCCAGGAAGGGACCCGGG--TCACGAAGTCCCCACGCGCT	584
Db	415	CTCATGAACCCGGGGTCCCTTCTCTGGAGAGGGCGTGGGCAGCTCGTGAACCCGGTGTCCC	356
Qy	585	CTCCAGGAGGGGACACCGGGTTCACGAGCTGCCCCACGCCCTCTCCAGGAAGGGACCCCGG	644
Db	355	CTCTGGAGAGGACGTGGGCAGCTCGTGAACCCGGGGTCCCTTCTCTGGAGAGGACGTGGG	296
Qy	645	GTTACAGAGCTGCCCCACGTCTCTCTCCAGGAGGGGACACCGGGTTCACGAGCTGCCCCACGT	704
Db	295	CAGTTCGTGGACCCGGGGTCCCTTCTCTGGAGAGGACGTGGGCAGCTCGTGGACCCGGGGT	236
Qy	705	CCTCTCCAGGAGGGGACACCGGGTTCACGAGCTGCCCCACGCCCTCTCCAGGAGGGGACAC	764
Db	235	CCCTTCTCTGGAGAGGACGTGGGCAGCTCGTGAACCCGGGGTCCCTTCTCTGGAGAGGACGT	176
Qy	765	CGGGTTCACGAGCTGCCCCACGTCTCTCTCCAGGAAGGGACCCGGGTTCACGAGCTG-CCCAC	823
Db	175	GGGCAGCTCGTGGACCCGGGGTCCCTTCTCTGCAGAGGACGTGGCCAGCTCGTGGACCCGG	116
Qy	824	GTCTCTCTCCAGGAGGGGACACCGGGTTCACGAGCTGCCCCACGCACTTTC	872
Db	115	GTCCTTCTCTGGAGAGGACGTGGGCAGCTCGTGGACCCGGGTCCCTTCTCT	67

RESULT 9

US-10-743-704-10/c

; Sequence 10, Application US/10743704

; GENERAL INFORMATION:

; APPLICANT: KEITH, TIM

; APPLICANT: LITTLE, RANDALL D.

; APPLICANT: EERDEWEGH, PAUL VAN

; APPLICANT: DUPUIS, JOSEE

; APPLICANT: DEL MASTRO, RICHARD L.

; APPLICANT: SIMON, JASON

; APPLICANT: ALLEN, KRISTINA

; APPLICANT: PANDIT, SUNIL

; TITLE OF INVENTION: NOVEL HUMAN GENES RELATING TO RESPIRATORY DISEASES AND OBESITY

; FILE REFERENCE: 2976-4037

; CURRENT APPLICATION NUMBER: US/10/743,704

; CURRENT FILING DATE: 2003-12-22

; PRIOR APPLICATION NUMBER: US/09/627,465

; PRIOR FILING DATE: 2000-07-28

; PRIOR APPLICATION NUMBER: 60/211,749

; PRIOR FILING DATE: 2000-06-14

; PRIOR APPLICATION NUMBER: 60/146,336

; PRIOR FILING DATE: 1999-07-30

; NUMBER OF SEQ ID NOS: 51

; SOFTWARE: PatentIn Ver 2.1

; SEQ ID NO 10

; LENGTH: 1744

; TYPE: DNA

; ORGANISM: Homo sapiens

; FEATURE:

; NAME/KEY: CDS

; LOCATION: (3)..(1349)

US-10-743-704-10

Query Match 9.3%; Score 130; DB 1; Length 1744;

Best Local Similarity 51.7%; Pred. No. 4.2;

Matches 429; Conservative 0; Mismatches 390; Indels 10; Gaps 6;

```

Qy      52 CCCACGCCCTCTCCAGGAGGGGACACCGGGTTCACGAGCTGCCCACGTCTCTCCAGGAG 111
      ||  ||  ||  ||  ||  ||  ||  ||  ||  ||  ||  ||  ||  ||  ||  ||
Db      893 CCGGGGTCCCTTCCTGGAAAGTGCGTGCGGTCAGCTCGTGAACCCGGTGTCCCTCCTGGAG 834

Qy      112 GGGACACCGGGTTCATGAGCTGCCCACGCCCTTTCCAGGAAGGGACCCCGGGTTCACGAG 171
      ||||  ||  ||  ||  ||  ||  ||  ||  ||  ||  ||  ||  ||  ||  ||
Db      833 AGGACGTGGGCAGCTCGTG-GACCCGGGTCCCTTCCTGGAGAGGACGTGGGCAGCTCGTG 775

Qy      172 CTGCCCACGTCTCTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCACGTCTCTCCAG 231
      ||  ||||  ||||  ||||  ||  ||  ||  ||  ||  ||  ||  ||  ||  ||
Db      774 AACCCGGTGTCCCTCCTGGAGAGGGCGTGCGGTCAGCTCGTGAACCCGGTGTCCCTCCTG 715

Qy      232 GAAGGGACCCCGGGTTCACGAGCTGCCCACGTCTCTCCAGGAAGGGACCCGGG--TCAC 289
      ||  ||||  ||  ||  ||  ||  ||  ||||  ||||  ||  ||  ||  ||
Db      714 GAGAGGACGTGGGCAGCTCGTGAACCCGGTGTCCCTCCTGGAGAGGACGTGGGCAGCTC 655

Qy      290 GAACTGCCCACGTCTCTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCACGTCTCTC 349

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Db	654	GTGAACCCGGGGTCCCTTCCTGGAGAGGGCGTGGGCAGCTCGTGAACCCGGTGTCCCTC	595
Qy	350	CAGGAGGGGACACCGGGTTCACGAGCTGCCCACGCCCTCTCCAGGAAGGGACCCGGGTT	409
Db	594	CTGGAGAGCGCGTGGGCAGTTCGTG-GACCCGGGTCCCTTCCTGGAGAGGACGTGGGCAG	536
Qy	410	CATGAGCTGCCCACGTCTCTCCAGGAAGGGACCCGGGTACGAACTGCCCACGCCCTCT	469
Db	535	CTCGTGGACCCGGGTCCCTTCCCGTTGACGACGTGGGCAGCTCGTGGACCCGGGTCCCT	476
Qy	470	CCAGGAGGGGACCCGGGTACAGAGCTGCCCACGTCTCTCCAGGAAGGGACCCGGGTCA-	528
Db	475	CCTGGAGAGGGCGTGGGCAGTTCGTGGACCCGGGTCCCTTCCTGGAGAGGACGTGGGCAG	416
Qy	529	--CGAGCTGCCCACGTCTCTCCAGGAAGGGACCCGGG--TCACGAACTGCCCACGCGCT	584
Db	415	CTCATGAACCCGGGGTCCCTTCCTGGAGAGGGCGTGGGCAGCTCGTGAACCCGGTGTCCC	356
Qy	585	CTCCAGGAGGGGACACCGGGTTCACGAGCTGCCCACGCCCTCTCCAGGAAGGGACCCCGG	644
Db	355	CTCCTGGAGAGGACGTGGGCAGCTCGTGAACCCGGGGTCCCTTCCTGGAGAGGACGTGGG	296
Qy	645	GTTACAGAGCTGCCCACGTCTCTCCAGGAGGGGACACCGGGTTCACGAGCTGCCCACGT	704
Db	295	CAGTTCGTGGACCCGGGGTCCCTTCCTGGAGAGGACGTGGGCAGCTCGTGGACCCGGGGT	236
Qy	705	CCTCTCCAGGAGGGGACACCGGGTTCACGAGCTGCCCACGCCCTCTCCAGGAGGGGACAC	764
Db	235	CCCTTCCTGGAGAGGACGTGGGCAGCTCGTGAACCCGGGGTCCCTTCCTGGAGAGGACGT	176
Qy	765	CGGGTTCACGAGCTGCCCACGTCTCTCCAGGAAGGGACCCGGGTACGAGCTG-CCCAC	823
Db	175	GGGCAGCTCGTGGACCCGGGGTCCCTTCCTGCAGAGGACGTGGCCAGCTCGTGGACCCGG	116
Qy	824	GTCCTCTCCAGGAGGGGACACCGGGTTCACGAGCTGCCCACGCACTTTC	872
Db	115	GTCCTTTCCTGGAGAGGACGTGGGCAGCTCGTGGACCCGGGTCCCTTCC	67

RESULT 10

US-10-743-704-8/c

; Sequence 8, Application US/10743704

; GENERAL INFORMATION:

; APPLICANT: KEITH, TIM

; APPLICANT: LITTLE, RANDALL D.

; APPLICANT: EERDEWEGH, PAUL VAN

; APPLICANT: DUPUIS, JOSEE

; APPLICANT: DEL MASTRO, RICHARD L.

; APPLICANT: SIMON, JASON

; APPLICANT: ALLEN, KRISTINA

; APPLICANT: PANDIT, SUNIL

; TITLE OF INVENTION: NOVEL HUMAN GENES RELATING TO RESPIRATORY DISEASES AND OBESITY

; FILE REFERENCE: 2976-4037

; CURRENT APPLICATION NUMBER: US/10/743,704

; CURRENT FILING DATE: 2003-12-22

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; PRIOR APPLICATION NUMBER: US/09/627,465
; PRIOR FILING DATE: 2000-07-28
; PRIOR APPLICATION NUMBER: 60/211,749
; PRIOR FILING DATE: 2000-06-14
; PRIOR APPLICATION NUMBER: 60/146,336
; PRIOR FILING DATE: 1999-07-30
; NUMBER OF SEQ ID NOS: 51
; SOFTWARE: PatentIn Ver 2.1
; SEQ ID NO 8
; LENGTH: 2010
; TYPE: DNA
; ORGANISM: Homo sapiens
; FEATURE:
; NAME/KEY: CDS
; LOCATION: (3)..(1244)
US-10-743-704-8

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Query Match          9.3%;  Score 130;  DB 1;  Length 2010;
Best Local Similarity 51.7%;  Pred. No. 3.6;
Matches 429;  Conservative 0;  Mismatches 390;  Indels 10;  Gaps 6;

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Qy      52 CCCACGCCCTCTCCAGGAGGGGACACCGGGTTCACGAGCTGCCCACGTCTCTCCAGGAG 111
      || | | | | | | | | | | | | | | | | | | | | | | | | | | | |
Db      893 CCGGGGTCCCTTCCTGGAAAGTGCGTGGGCAGCTCGTGAACCCGGTGTCCCCTCCTGGAG 834

Qy      112 GGGACACCGGGTTCATGAGCTGCCCACGCCCTTTCCAGGAAGGGACCCCGGGTTCACGAG 171
      || | | | | | | | | | | | | | | | | | | | | | | | | | | | |
Db      833 AGGACGTGGGCAGCTCGTG-GACCCGGGTCCCTTCCTGGAGAGGACGTGGGCAGCTCGTG 775

Qy      172 CTGCCCACGTCTCTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCACGTCTCTCCAG 231
      || | | | | | | | | | | | | | | | | | | | | | | | | | | | |
Db      774 AACCCGGTGTCCCCTCCTGGAGAGGGCGTGGGCAGCTCGTGAACCCGGTGTCCCCTCCTG 715

Qy      232 GAAGGGACCCCGGGTTCACGAGCTGCCCACGTCTCTCCAGGAAGGGACCCGGG--TCAC 289
      || | | | | | | | | | | | | | | | | | | | | | | | | | | | |
Db      714 GAGAGGACGTGGGCAGCTCGTGAACCCGGTGTCCCCTCCTGGAGAGGACGTGGGCAGCTC 655

Qy      290 GAACTGCCCACGTCTCTCCAGGAAGGGACCCCGGGTTCACGAGCTGCCCACGTCTCTCTC 349
      | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
Db      654 GTGAACCCGGGTCCCTTCCTGGAGAGGGCGTGGGCAGCTCGTGAACCCGGTGTCCCCTC 595

Qy      350 CAGGAGGGGACACCGGGTTCACGAGCTGCCCACGCCCTCTCCAGGAAGGGACCCCGGGT 409
      | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
Db      594 CTGGAGAGCGCGTGGGCAGTTCGTG-GACCCGGGTCCCTTCCTGGAGAGGACGTGGGCAG 536

Qy      410 CATGAGCTGCCCACGTCTCTCCAGGAAGGGACCCGGGTACGAACTGCCCACGCCCTCT 469
      | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
Db      535 CTCGTGGACCCGGGTCCCTTCCCGTTGACGACGTGGGCAGCTCGTGGACCCGGGTCCCCT 476

Qy      470 CCAGGAGGGGACCCGGGTACGAGCTGCCCACGTCTCTCCAGGAAGGGACCCGGGTCA- 528
      || | | | | | | | | | | | | | | | | | | | | | | | | | | | |
Db      475 CCTGGAGAGGGCGTGGGCAGTTCGTGGACCCGGGTCCCTTCCTGGAGAGGACGTGGGCAG 416

Qy      529 --CGAGCTGCCCACGTCTCTCCAGGAAGGGACCCGGG--TCACGAACTGCCCACGCGCT 584
      | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
Db      415 CTCATGAACCCGGGTCCCTTCCTGGAGAGGGCGTGGGCAGCTCGTGAACCCGGTGTCCC 356

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O | O IntelliGenetics
> O <

GENALIGN - Multiple Sequence Alignment Program
Release 5.4

Mon 23 Oct 106 16:32:10-PDT

Solution Parameters:

Nucleic Alphabet = Identity
Output line length = 80
Compress = Off
Histogram = Off
Randomization = Off

AMINO-Res-length = 2
DELletion-weight = 5.00
LEngth-factor = 0
MatchIng-weight = 1.00
NUCLEIC-Res-length = 4
SPRead-factor = 50

Clustered order of selected sequences:

1. US-10-743-704-1 (1-10304)
3. US-10-743-704-4 (1-1441)
2. US-10-743-704-2 (1-1581)
4. US-10-743-704-6 (1-1576)
5. US-10-743-704-10 (1-1744)
5. US-10-743-704-8 (1-2010)

Needleman-Wunsch Alignment: (listed in Clustered order)

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US-10-743-1 1 cggcggtgtatatctcttcatagagagctcagacgctggttaattctggtcgatat
US-10-743-4 1 TCACGAGTGCCTCCACGTCCTTCAGGAAGGACCCCGGGTTCACGAGTGCCTCCACGTCGT
US-10-743-2 1 TCACGAGTGCCTCCACGTCCTTCAGGAAGGACCCCGGGTTCACGAGTGCCTCCACGTCGT
US-10-743-6 1 TCACGAGTGCCTCCACGTCCTTCAGGAAGGACCCCGGGTTCACGAGTGCCTCCACGTCGT
US-10-743-10 1 TCACGAGTGCCTCCACGTCCTTCAGGAAGGACCCCGGGTTCACGAGTGCCTCCACGTCGT
US-10-743-8 1 TCACGAGTGCCTCCACGTCCTTCAGGAAGGACCCCGGGTTCACGAGTGCCTCCACGTCGT
consensus tcacgagctgcccacgtctctccaggaaggaccacggttcacgagctgcacacgtcgt

US-10-743-62 atagAGatctttAtCactGagtgatagaaCgtACatGaatgtacGacACgctcCagacGag
US-10-743-4 62 CTCACGAGGAGGACCCCGGGTTCACGAGTGCCTCCACGTCCTTCACGGAAGGACCCCGGGTC
US-10-743-2 62 CTCACGAGGAGGACCCCGGGTTCACGAGTGCCTTCACGTCCTTCACGGAAGGACCCCGGGTC
US-10-743-6 62 CTCACGAGGAGGACCCCGGGTTCACGAGTGCCTTCACGTCCTTCACGGAAGGACCCCGGGTC
US-10-743-10 62 CTCACGAGGAGGACCCCGGGTTCACGAGTGCCTTCACGTCCTTCACGGAAGGACCCCGGGTC
US-10-743-8 62 CTCACGAGGAGGACCCCGGGTTCACGAGTGCCTTCACGTCCTTCACGGAAGGACCCCGGGTC
consensus cTccAGaaagggAcCgggGtccAcgagctgCccACgtctctctccagAaaAGacCcgggGtc

US-10-743-123 tAacttgactaggataagataGacaGtAccaaCTaatGagaChagAagaGggaAtcataTa
US-10-743-123 CACGAGTGCCTCCACGTCCTTCAGGAAGGACCCCGGGTTCACGAGTGCCTCCACGTCCTC
US-10-743-123 CACGAGTGCCTCCACGTCCTTCAGGAAGGACCCCGGGTTCACGAGTGCCTCCACGTCCTC
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US-10-743-123 CACGAGCTGCCACGTCCTTCGAGGAAGGACCCCGGGTTCACGAGTGCCTCCACGTCCTC
US-10-743-123 CACGAGTGCCTCCACGTCCTTCGAGGAAGGACCCCGGGTTCACGAGTGCCTCCACGTCCTC
US-10-743-123 CACGAGTGCCTCCACGTCCTTCGAGGAAGGACCCCGGGTTCACGAGTGCCTCCACGTCCTC
consensus cAcgagctggccacgtcctctGcagGaaggGAcCccggGtcCacAGctGcccAcgctcTc

US-10-743-184 gaatcatgtaGtCtgaGtCtTagcgagtgTcgaCATGatCaCaagcGAAAtacAGaCtatGa
US-10-743-184 TCCAGGAAGGACCCCGGGTTCACGAGTGCCTCCACGTCCTTCAGGAAGGACCCCGGGT
US-10-743-184 TCCAGGAAGGACCCCGGGTTCACGAGTGCCTCCACGTCCTTCAGGAAGGACCCCGGGT
US-10-743-184 TCCAGGAAGGACCCCGGGTTCACGAGTGCCTCCACGTCCTTCAGGAAGGACCCCGGGT
US-10-743-184 TCCAGGAAGGACCCCGGGTTCACGAGTGCCTCCACGTCCTTCAGGAAGGACCCCGGGT
US-10-743-184 TCCAGGAAGGACCCCGGGTTCACGAGTGCCTCCACGTCCTTCAGGAAGGACCCCGGGT
US-10-743-184 TCCAGGAAGGACCCCGGGTTCACGAGTGCCTCCACGTCCTTCAGGAAGGACCCCGGGT
consensus tccaggaaggGAcCcccgGgTtcacgagctgTccCacGtCtCtccagGAaggGAcCcccgGgTc

US-10-743-245 gaAgagGtaGaaataaTaagtanaactGAGaaGAGaggtcaTatgtacAtacaaatCagtaa
US-10-743-245 CCACGAGTGCCTCCACGTCCTTCAGGAAGGACCCCGGGTTCACGAGTGCCTCCACGTCCT
US-10-743-245 CCACGAGTGCCTCCACGTCCTTCAGGAAGGACCCCGGGTTCACGAGTGCCTCCACGTCCT
US-10-743-245 CCACGAGTGCCTCCACGTCCTTCAGGAAGGACCCCGGGTTCACGAGTGCCTCCACGTCCT
US-10-743-245 CCACGAGTGCCTCCACGTCCTTCAGGAAGGACCCCGGGTTCACGAGTGCCTCCACGTCCT
US-10-743-245 CCACGAGTGCCTCCACGTCCTTCAGGAAGGACCCCGGGTTCACGAGTGCCTCCACGTCCT
US-10-743-245 CCACGAGTGCCTCCACGTCCTTCAGGAAGGACCCCGGGTTCACGAGTGCCTCCACGTCCT
consensus ccAcgagGtGcccacgTcctctccagGAaggGAcCcccgGgTccacgGaAActgcccAcgctcct

US-10-743-306 agCaAtagAaatgaatacaTtataagcCacagttacagaaTTagcctAattttAACaaCa
US-10-743-306 CTCACGAGGAGGACCCCGGGTTCACGAGTGCCTCCACGTCCTTCAGGAAGGACCCCGGGT
US-10-743-306 CTCACGAGGAGGACCCCGGGTTCACGAGTGCCTCCACGTCCTTCAGGAAGGACCCCGGGT
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US-10-743-306 CTCACGAGGAGGACCCCGGGTTCACGAGTGCCTCCACGTCCTTCAGGAAGGACCCCGGGT
consensus ctCcAGgaAggggacCcccgGgTtcacgagCtgcCccacgtcctctTccagggAGggggAcacCcggg

US-10-743-367 TggcaagcagGttatatCaaaCatagaagAGtAaCtCtatcgaccatGggtaggAacgaa
US-10-743-367 TTCACGAGTGCCTCCACGTCCTTCAGGAAGGACCCCGGGTTCATAGCTGCCCAAGTCCTC
US-10-743-367 TTCACGAGTGCCTCCACGTCCTTCAGGAAGGACCCCGGGTTCATAGCTGCCCAAGTCCTC
US-10-743-367 TTCACGAGTGCCTCCACGTCCTTCAGGAAGGACCCCGGGTTCATAGCTGCCCAAGTCCTC
US-10-743-367 TTCACGAGTGCCTCCACGTCCTTCAGGAAGGACCCCGGGTTCATAGCTGCCCAAGTCCTC
US-10-743-367 TTCACGAGTGCCTCCACGTCCTTCAGGAAGGACCCCGGGTTCATAGCTGCCCAAGTCCTC
US-10-743-367 TTCACGAGTGCCTCCACGTCCTTCAGGAAGGACCCCGGGTTCATAGCTGCCCAAGTCCTC
US-10-743-367 TTCACGAGTGCCTCCACGTCCTTCAGGAAGGACCCCGGGTTCATAGCTGCCCAAGTCCTC
consensus TtcacgagctGcccacgCctctCtccaggaAGgAgcCcCggggttcacgGctgccAcgctcc

US-10-743-428 TaaaggGtCgGaAGaacaatTaagaatGctgttAaACagcaatacaagaGaatagCacca
US-10-743-428 TCTCCAGGAAGGACCCCGGGTTCACGAACTGCCCAAGTCCTTCAGGAAGGACCCCGGGT
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US-10-743- 428 TCTCCAGGAGGAGGACCCGGGTCCAGAACTGCCCAAGCCCTCTCCAGGAGGGGACCCGGGT
US-10-743- 428 TCTCCAGGAGGAGGACCCGGGTCCAGAACTGCCCAAGCCCTCTCCAGGAGGGGACCCGGGT
US-10-743- 428 TCTCCAGGAGGAGGACCCGGGTCCAGAACTGCCCAAGCCCTCTCCAGGAGGGGACCCGGGT
US-10-743- 428 TCTCCAGGAGGAGGACCCGGGTCCAGAACTGCCCAAGCCCTCTCCAGGAGGGGACCCGGGT
consensus
US-10-743- 489 CtaagacagcCAaAGeGtCAcCGGgAaGtAggaaAGagGacCtCacaaggaGaggaa
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US-10-743- 489 CCACGAGCTGCCACAGTCTGTCACACGGGAAGGACCCGGGTCCACGAGCTGCCACAGTCTCTC
US-10-743- 489 CCACGAGCTGCCACAGTCTGTCACACGGGAAGGACCCGGGTCCACGAGCTGCCACAGTCTCTC
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consensus
US-10-743- 550 agggagtcctgatTTTGAaAtttcagtgaaAGacagtggtttcccccGGAGgAGctTa
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consensus
US-10-743- 611 gtgacCCGatcgaCTGaagAGGAcctgagggtaggggAtttttggGCTgacCGgc
US-10-743- 611 CACGAGTGCACAGCCCTCTCCAGGAAGGAGACCCGGGTTCACGAGCTGCCACAGTCTCTC
US-10-743- 611 CACGAGTGCACAGCCCTCTCCAGGAAGGAGACCCGGGTTCACGAGCTGCCACAGTCTCTC
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US-10-743- 611 CACGAGTGCACAGCCCTCTCCAGGAAGGAGACCCGGGTTCACGAGCTGCCACAGTCTCTC
US-10-743- 611 CACGAGTGCACAGCCCTCTCCAGGAAGGAGACCCGGGTTCACGAGCTGCCACAGTCTCTC
consensus
US-10-743- 672 ctatGctGaacGcCacCGggaAttcaggGagaAacaCGgggCCcGggttccaggAGac
US-10-743- 672 TCCAGGAGGGGACACCGGGTTCACGAGCTGCCACAGTCTCTCCTCCAGGAGGGGACACCGGT
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US-10-743- 733 agcCagGcCaCagcCctgaggaGggcAaaccCCACcAGcagGtGagaggAGcCgc
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US-10-743- 733 TCACGAGCTGCCACAGCCCTCTCCAGGAGGGGACCCGGGTTCACGAGCTGCCACAGTCTCT
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US-10-743- 794 CcagggaaGGaCccGgGtCcacGgAggggaACCCggGtCctctCCagGaggggaCaacGgGt
US-10-743- 794 CcagggctggGgGcCtggGgCaggGgagtaagtggacCagagCCcGcScaaatCctaacGgG
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consensus
US-10-743- 855 ggtgagcagtgagcCtgtGgGtGgcAGtGGtCGgtttTggggGtTgtttgtCctgCag
US-10-743- 855 TCACGAGCTGCCACAGCACTTTCCAGGAAGGAGACCCGGGTTCAGGTCTCTCTCCCGGCCCA
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US-10-743- 916 CaaatgatgccGccctgAcGgaAccAGtGcaccgtccACaacagagtgcCcacgtTCctctcC
US-10-743- 916 CATCTGCTTTGTGTAAATCAGAAAGATGAGGAACAGGCCCTCTCTCTCTCCAGGC
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consensus
US-10-743- 977 caGgaaggGacccccGGTCCacgagctgcccaggtcctctcCaggaaggGaccgaagacCac
US-10-743- 977 AGCTTTTGTGGAGGGGCTGGATCTCCT G C GCA C CTT
US-10-743- 977 AGCTTTTGTGGAGGGGCTGGATCTCCT G C GCA C CTT
US-10-743- 977 AGCTTTTGTGGAGGGGCTGGATCTCCT G C GCA C CTT
US-10-743- 977 AGCTTTTGTGGAGGGGCTGGATCTCCT G C GCA C CTT
US-10-743- 977 AGCTTTTGTGGAGGGGCTGGATCTCCT G C GCA C CTT
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consensus
US-10-743- 977 agCctttGGtggaGGGcTggatcctcct-c-g--cct--c-ggagggGcac-c-g--Ctt
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US-10-743- 1015 CC CT GGC A GGG C A C CCT GT G
US-10-743- 1015 CC CT GGC A GGG C A C CCT GT G
US-10-743- 1015 CC CT GGC A GGG C A C CCT GT G
US-10-743- 1015 CC CT GGC A GGG C A C CCT GT G
US-10-743- 1038 gagccCagaaCTgcaggcgccgcagagaaGgggtCcatgAtggCgCCTcgTgcgcaG
consensus gagc-cC--a-ct-c-----gGc-ga-aa-GGgt-Ca-gA--c-CCTcggt-----g

US-10-743- 1099 aggggggacacccgggttcatgagctgcCacgccccttccaggaaagggacccccgggttcca
US-10-743- 1035 C T TG A G CC CCA GA A CT GCAG G
US-10-743- 1035 C T TG A G CC CCA GA A CT GCAG G
US-10-743- 1035 C T TG A G CC CCA GA A CT GCAG G
US-10-743- 1035 C T TG A G CC CCA GA A CT GCAG G
US-10-743- 1035 C T TG A G CC CCA GA A CT GCAG G
US-10-743- 1099 cCTTggaccTgccccAtgGaCctggatGCCAgTgcctgAggtCTTgcaggGCAgtGca
consensus -c-tgg-----tgcc---at-g-cc-----CcaG-gat--c-ag-ctg-----gcadtgca

US-10-743- 1160 cgaGctgcccacGtctctccaggaggggacacgggttccacgagctgcccacgtctctctc
US-10-743- 1056 CG GCC G G CA GA G AA G
US-10-743- 1056 CG GCC G G CA GA G AA G
US-10-743- 1056 CG GCC G G CA GA G AA G
US-10-743- 1056 CG GCC G G CA GA G AA G
US-10-743- 1056 CG GCC G G CA GA G AA G
US-10-743- 1160 taCctcaccCCTgGcGctCagAgcctgtgttGacccccAAtccGcccccaactc
consensus --cGct--ccgCct-g-cgc-cagg-----c-G--c-c-aaat-cgp-c--c-ctc

US-10-743- 1221 cagGaaagggacccaggtccacgahctgcccacgcctctccaGagGggacccgggtcCac
US-10-743- 1071 G GG TCCATGA T G G C G C C
US-10-743- 1071 G GG TCCATGA T G G C G C C
US-10-743- 1071 G GG TCCATGA T G G C G C C
US-10-743- 1071 G GG TCCATGA T G G C G C C
US-10-743- 1071 G GG TCCATGA T G G C G C C
US-10-743- 1221 cctGttaccGgctcactcctTCCATGAggggcctTccccaggGacaGcGatGctCTcCtg
consensus c--G-----ggc----tcc-tccAtga----c--tc-c-----G--g-c---gc-ctcC--

US-10-743- 1282 gagctgcccacgtcgctctccaggagggacccgggtccacgagctgcccacgtcctctcca
US-10-743- 1088 T TG C GC A C GG T
US-10-743- 1090 GG TG C GC A G CCT TGGA CCT
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US-10-743- 1090 GG TG C GC A G CCT TGGA CCT
US-10-743- 1282 atGgctccTgcccCtTGcAgAgTgctgccccgcctGcccacCTTggccTgGAcctcgCCTg
consensus --gg--cctgc-c--gc--a--g--g--cc-----gcc--cct---ctgga--c--c---cct-
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US-10-743- 1745
US-10-743- 2011
consensus taaacgaggcagccatggaaaggggatgcagacaggaagtggagagggaagcggttctcca
US-10-743- 9822 ggagccctaggacctgctctggggctgctgctgctgagcccaactgggaaccagagcacag
US-10-743- 1442
US-10-743- 1582
US-10-743- 1577
US-10-743- 1745
US-10-743- 2011
consensus ggagccctaggacctgctctggggctgctgctgctgagcccaactgggaaccagagcacag
US-10-743- 9883 gataatgggtgacacctggtgatgatggcgatggagatgattatgatgagtgatgagtggtg
US-10-743- 1442
US-10-743- 1582
US-10-743- 1577
US-10-743- 1745
US-10-743- 2011
consensus gataatgggtgacacctggtgatgatggcgatggagatgattatgatgagtgatgagtggtg

US-10-743- 9944 atggtggtgatgattggtgatgatggtgacggtggtgatggtgatggtgatggtgatggtga

US-10-743- 1442

US-10-743- 1582

US-10-743- 1577

US-10-743- 1745

US-10-743- 2011

consensus atggtggtgatgattggtgatgatggtgacggtggtgatggtgatggtgatggtgatggtga

US-10-743- 10005 tgatggtgacggtggtgatggtgctgtgatgatggtgatggtgatggtgatggtgacggt

US-10-743- 1442

US-10-743- 1582

US-10-743- 1577

US-10-743- 1745

US-10-743- 2011

consensus tgatggtgacggtggtgatggtgctgtgatgatggtgatggtgatggtgatggtgatgacggt

US-10-743- 10066 gatgatgatggtgacggtgatgatggtgatgatggtgatggtgatggtgatggtgatggtg

US-10-743- 1442

US-10-743- 1582

US-10-743- 1577

US-10-743- 1745

US-10-743- 2011

consensus gatgatgatggtgacggtgatggtgatgatggtgatggtgatggtgatggtgatggtggtg

US-10-743- 10127 gtgatgatggtggtgatgatgatggtgatgatggtgatggtgatggtgatggtgatga

US-10-743- 1442

US-10-743- 1582

US-10-743- 1577

US-10-743- 1745

US-10-743- 2011

consensus gtgatgatggtggtgatgatgatgatggtgatgatggtgatggtgatggtgatggtgatga

US-10-743- 10188 tggatggtgatcatggtgatgatggtgatggtgatggtgatggtgatggtgatggtgatggt

US-10-743- 1442

US-10-743- 1582

US-10-743- 1577

US-10-743- 1745

US-10-743- 2011

consensus tggatggtgatcatggtgatgatggtgatggtgatggtgatggtgatggtgatggtgatggt

US-10-743- 10249 gatgatggtgatggtgatgatggtgatggtgatggtgatggtgatggttccaccacggggcg

US-10-743- 1442

US-10-743- 1582

US-10-743- 1577

US-10-743- 1745

US-10-743- 2011

consensus gatgatggtgatggtgatgatggtgatggtgatggtgatggtgatggttccaccacggggcg

Alignment score = -209195.00

Scoring matrix:

	1	2	3	4	5	6
1	-7900	-7200	-7875	-10045	-8715	
2		730	1287	-638	680	
3			676	-1414	-123	
4				-594	736	
5					403	
6						
